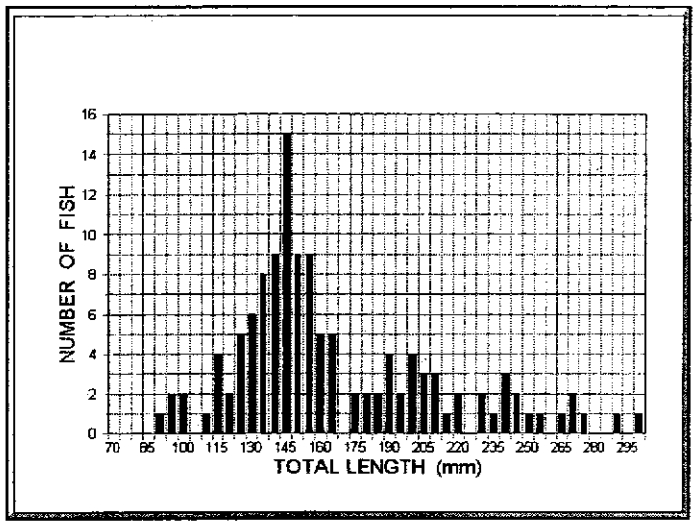
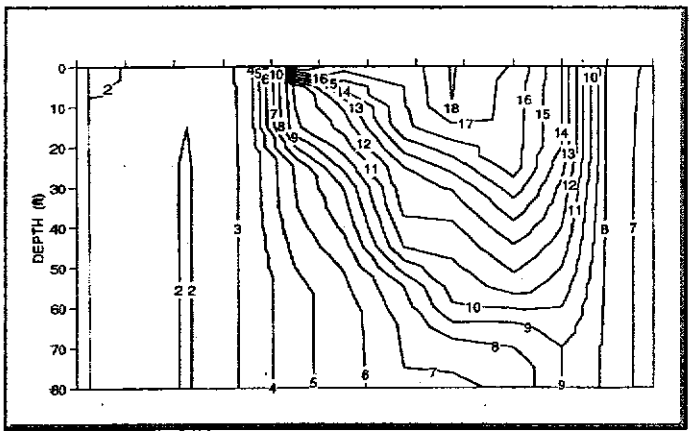
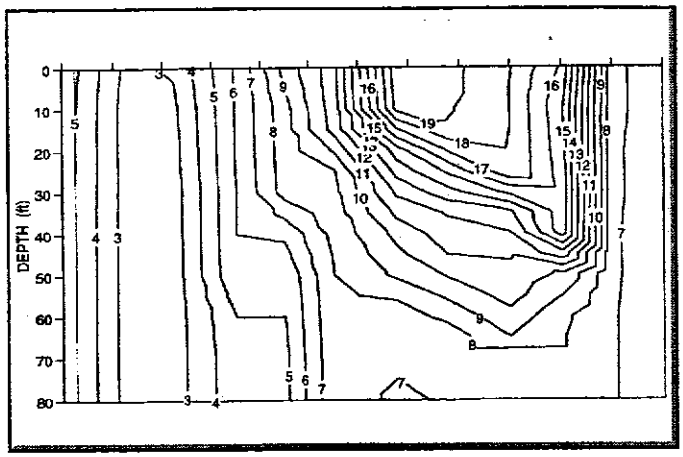
APPENDICES



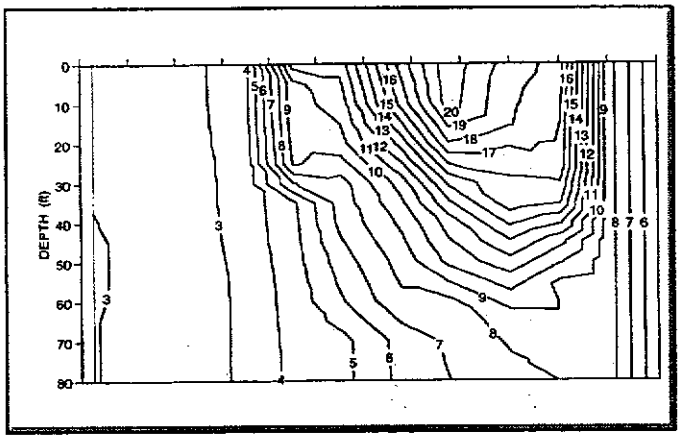
Appendix Figure 1. Distribution of brown bullheads in Spada Lake, summer of 1997.



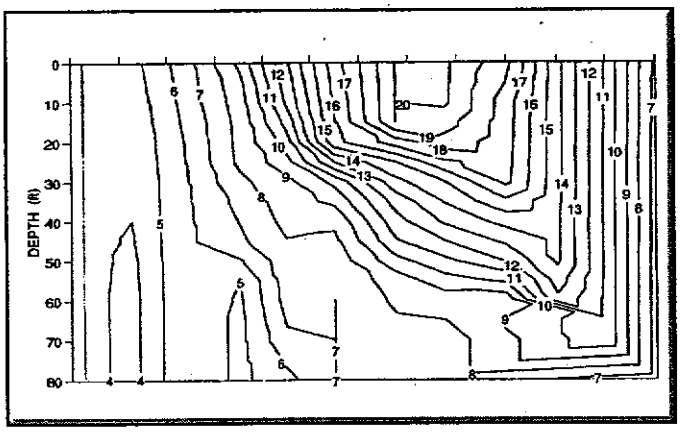
Appendix Figure 2. Thermal stratification of Spada Lake, 1989 - January through December.



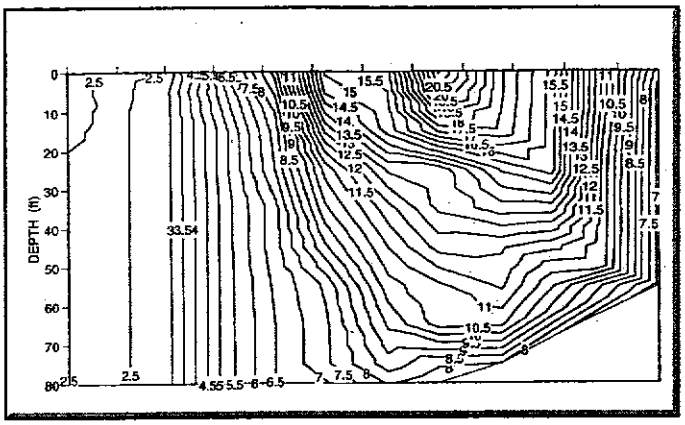
Appendix Figure 3. Thermal stratification of Spada Lake, 1990 - January through December.



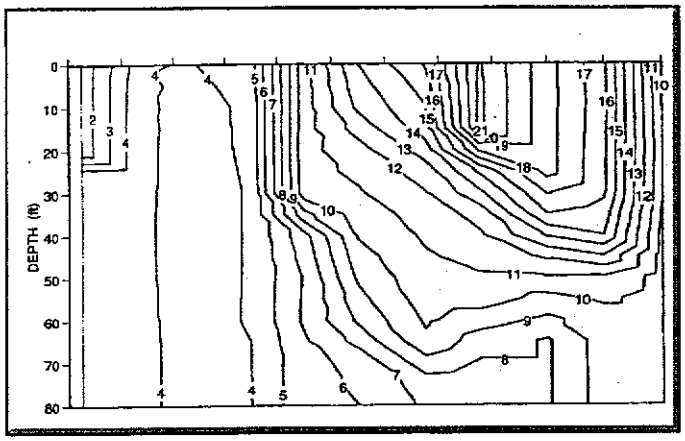
Appendix Figure 4. Thermal stratification of Spada Lake, 1991 - January through December.



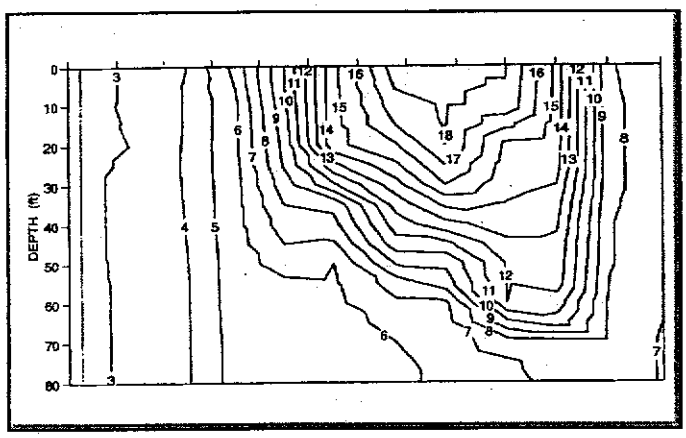
Appendix Figure 5. Thermal stratification of Spada Lake, 1992 - January through December.



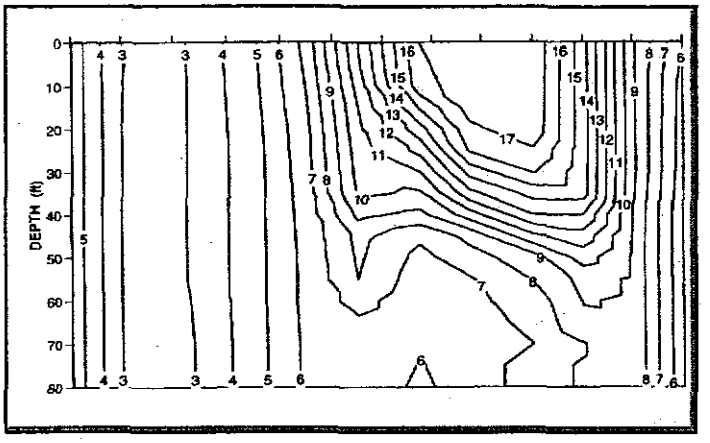
Appendix Figure 6. Thermal stratification of Spada Lake, 1993 - January through December.



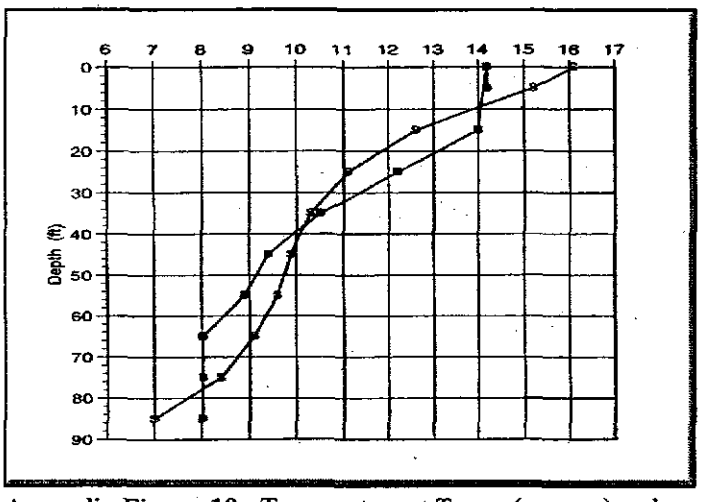
Appendix Figure 7. Thermal stratification of Spada Lake, 1994 - January through November.



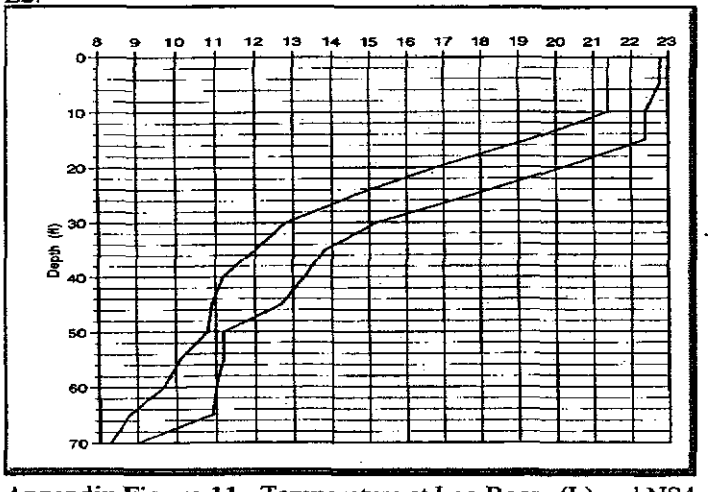
Appendix Figure 8. Thermal stratification of Spada Lake, 1995 - January through December.



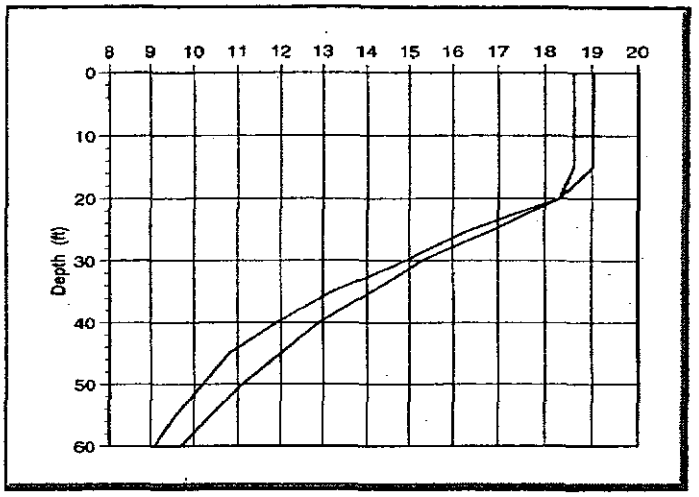
Appendix Figure 9. Thermal stratification of Spada Lake, 1996 - January through December.



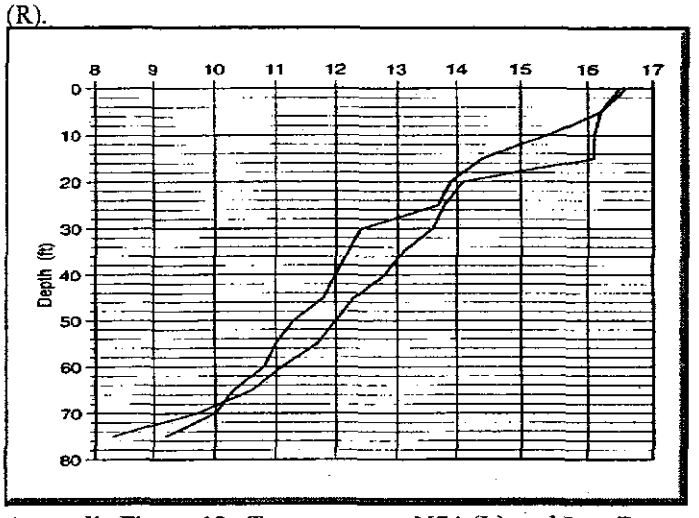
Appendix Figure 10. Temperature at Tower (squares) and L2.



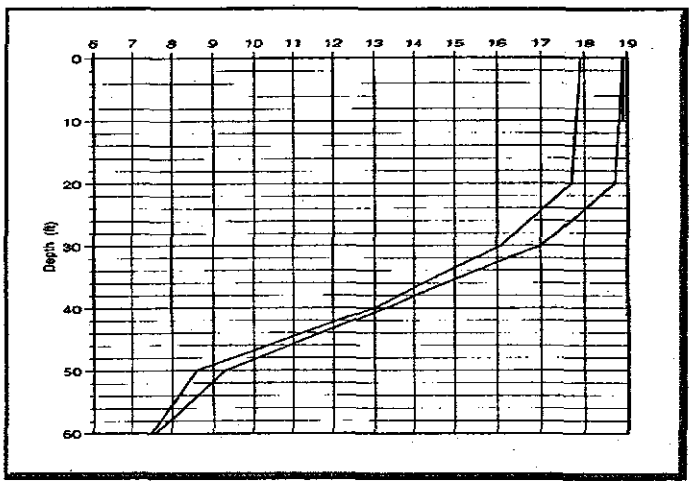
Appendix Figure 11. Temperature at Log Boom (L) and NS4 (R).



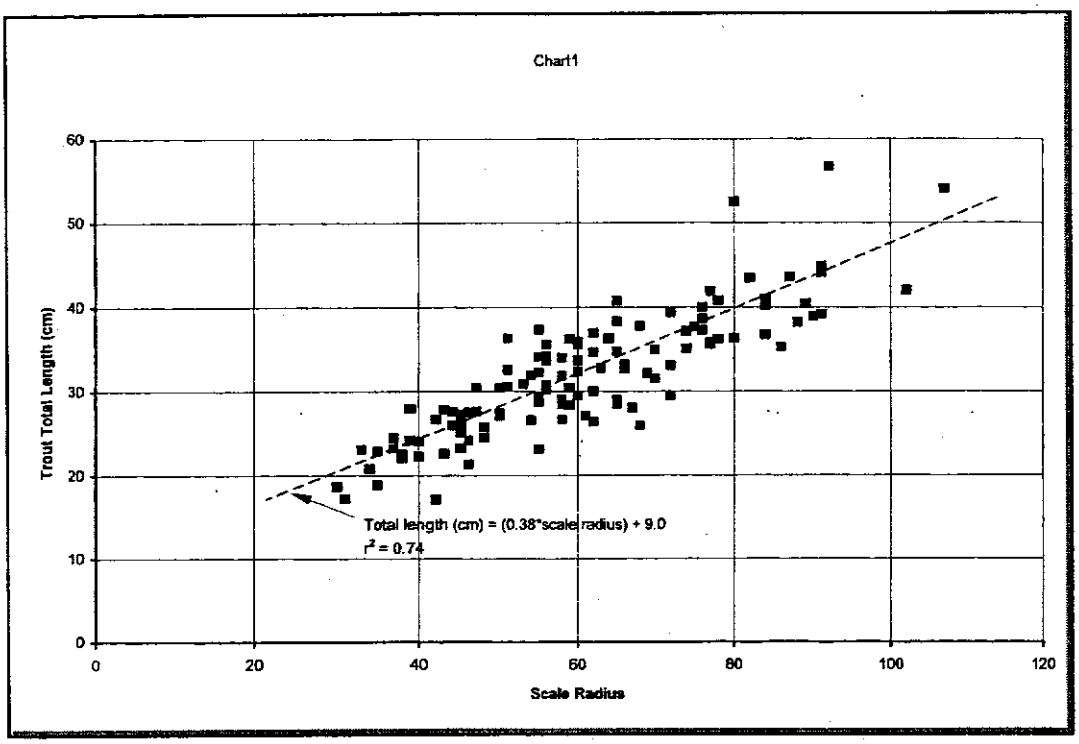
Appendix Figure 12. Temperature at Log Boom (L) and L2 (R).



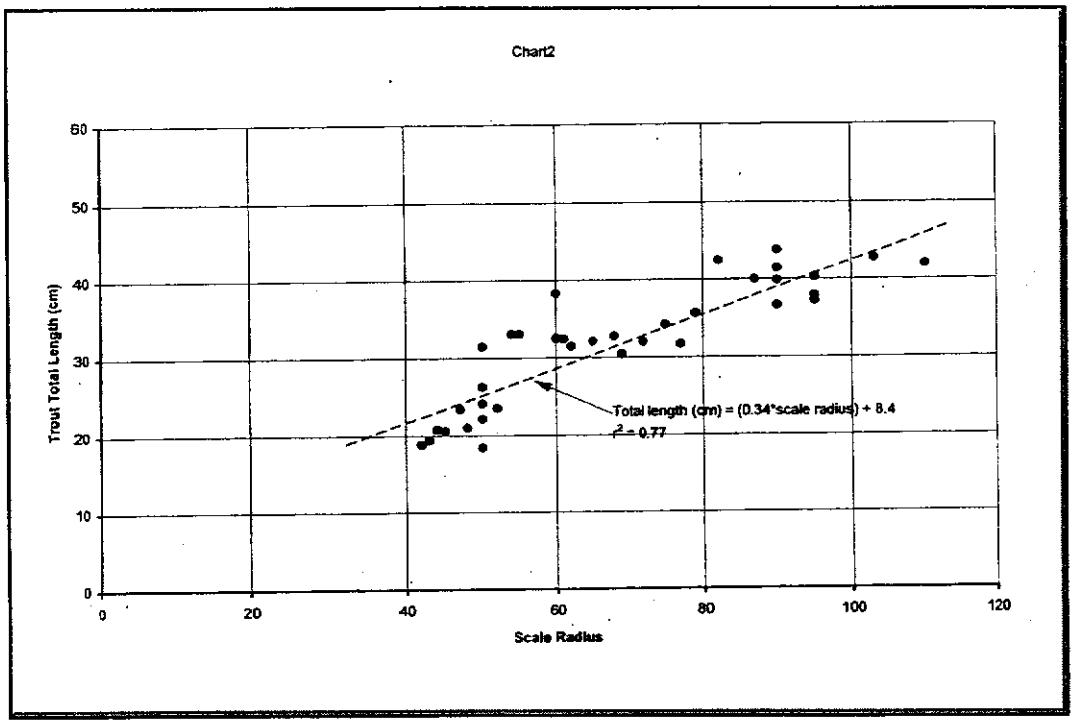
Appendix Figure 13. Temperature at NS4 (L) and Log Boom (R).



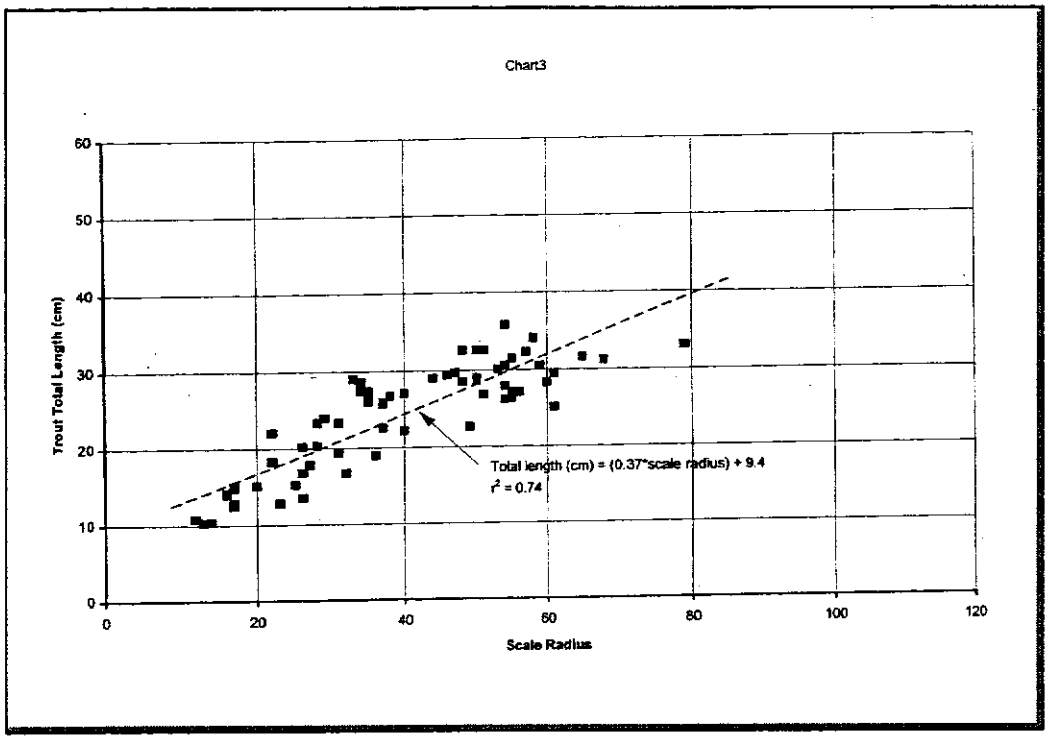
Appendix Figure 14. Temperature at Tower (L) and L2 (R).



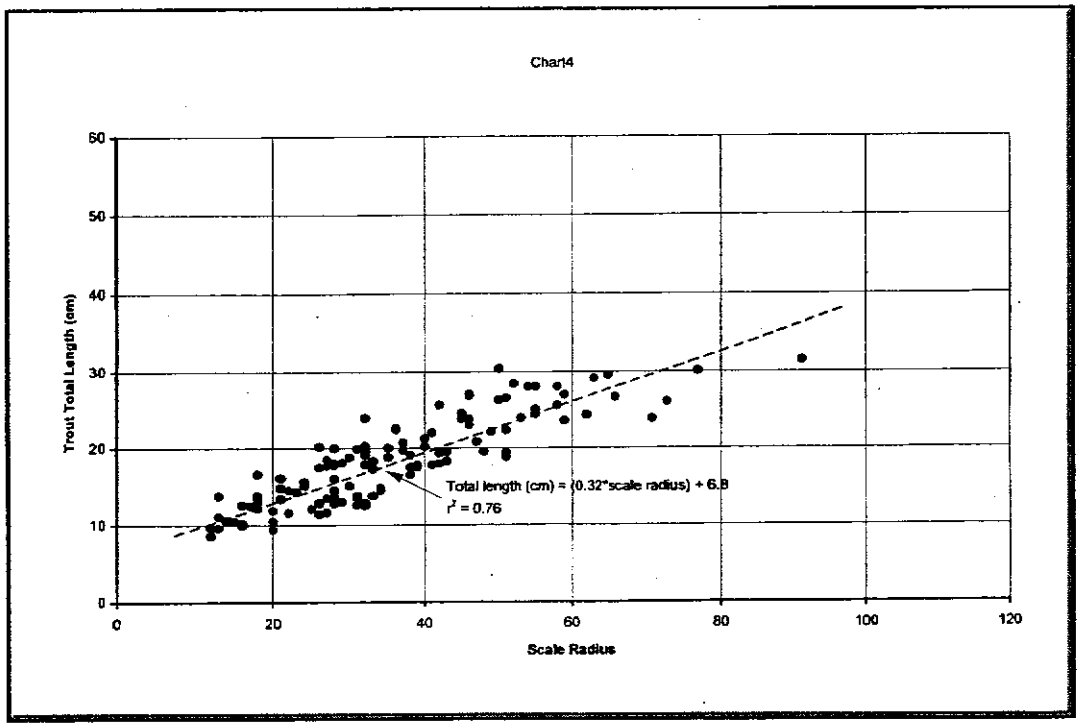
Appendix Figure 15. Cutthroat trout total length as a function of scale radius for trout sampled 1979-1980 from Spada Lake. Line fitted by Least Squares Regression.



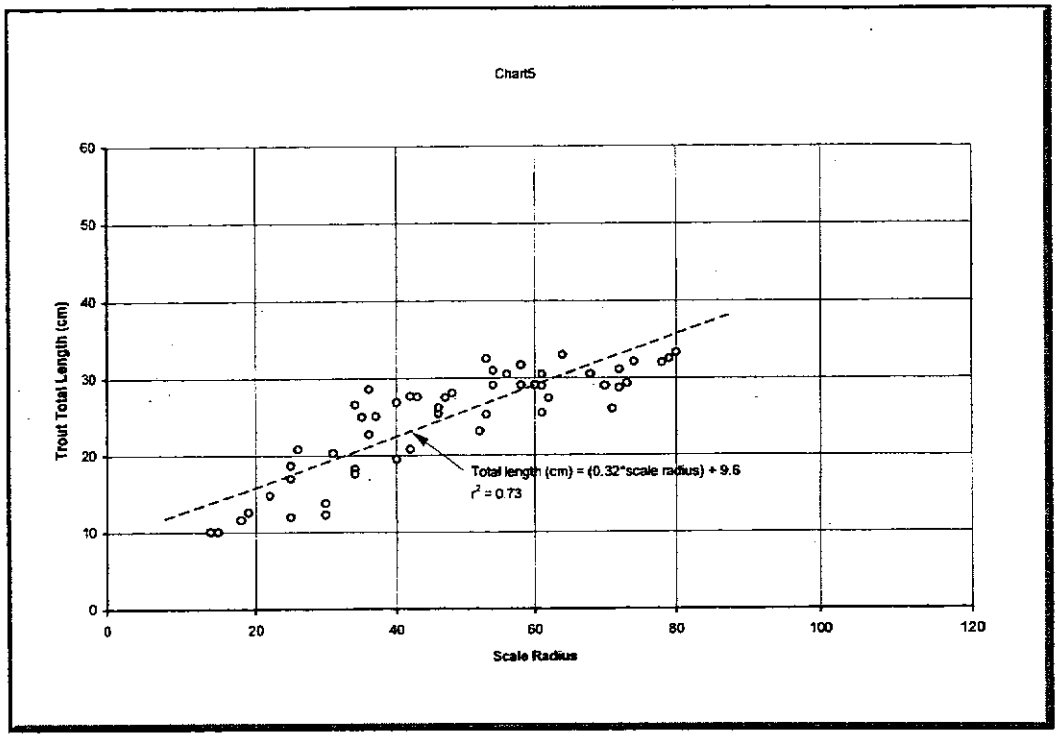
Appendix Figure 16. Rainbow trout total length as a function of scale radius for trout sampled 1979-1980 from Spada Lake. Line fitted by Least Squares Regression.



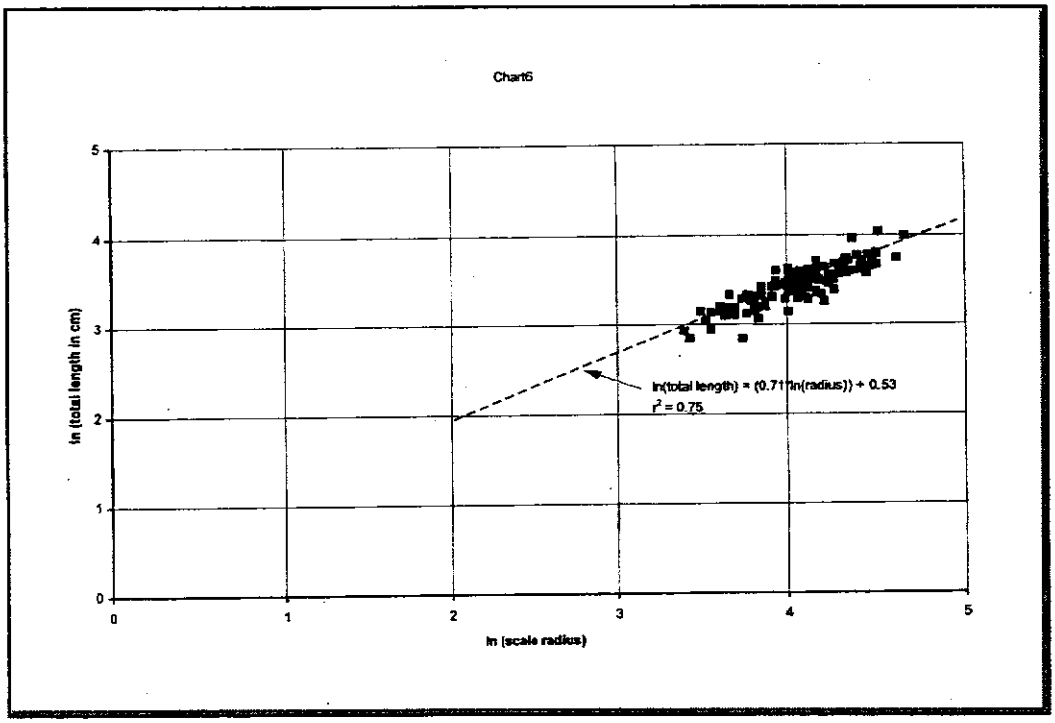
Appendix Figure 17. Cutthroat trout total length as a function of scale radius for trout sampled 1995-1997 from Spada Lake and tributaries. Line fitted by Least Squares Regression.



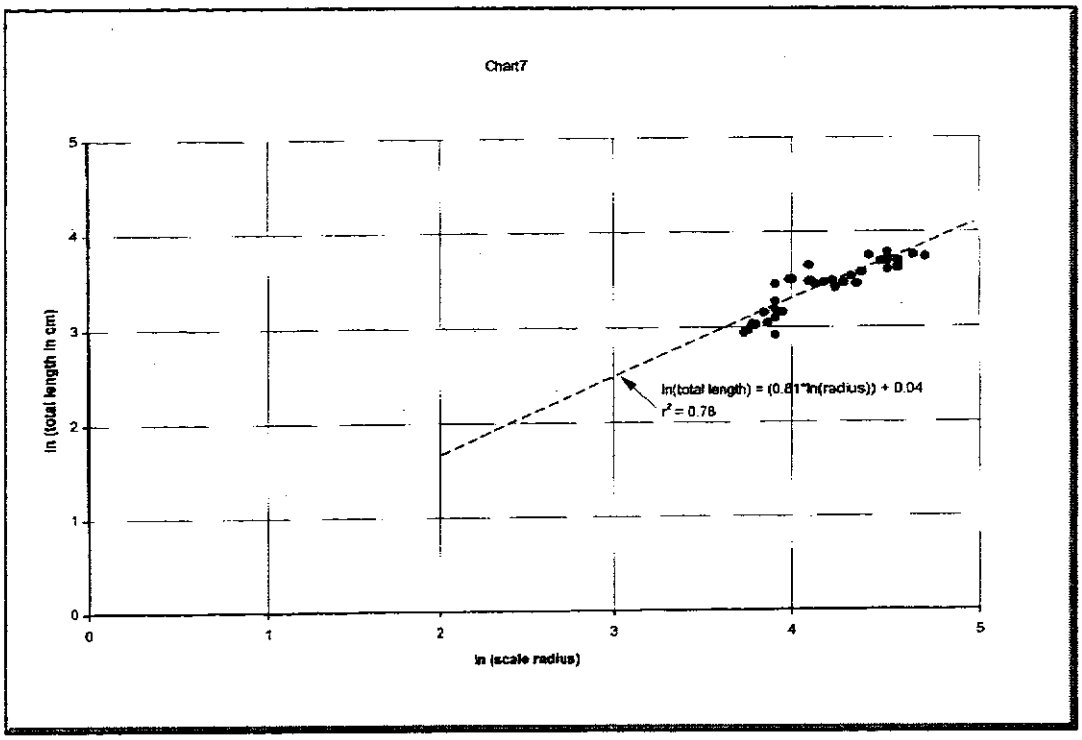
Appendix Figure 18. Rainbow trout total length as a function of scale radius for trout sampled 1995-1997 from Spada Lake and tributaries. Line fitted by Least Squares Regression.



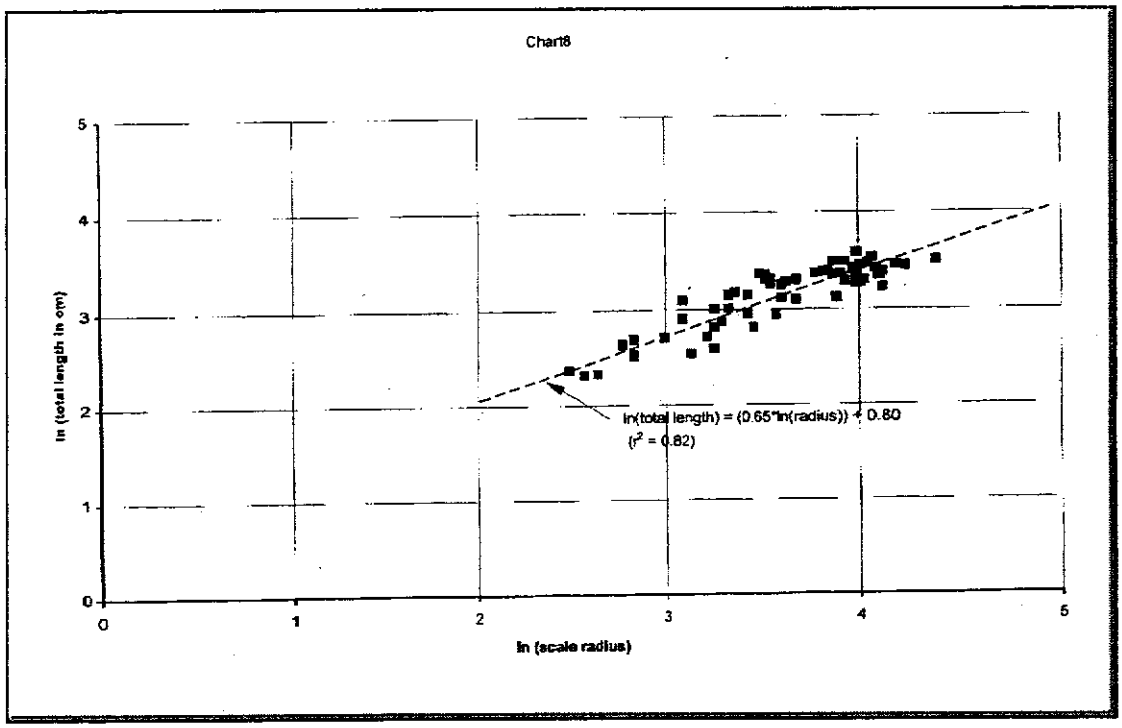
Appendix Figure 19. Hybrid trout total length as a function of scale radius for trout sampled 1995-1997 from Spada Lake and tributaries. Line fitted by Least Squares Regression.



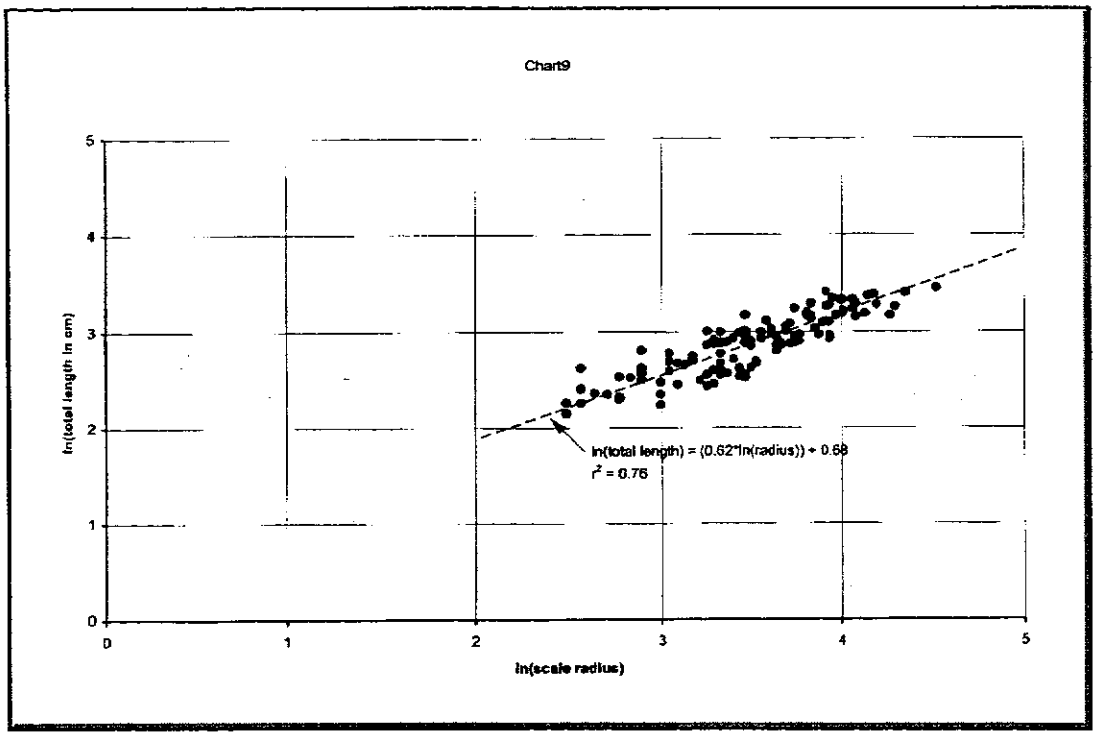
Appendix Figure 20. Cutthroat trout total length vs scale radius after natural logarithm transformation of data for trout sampled from Spada Lake 1979-1980.



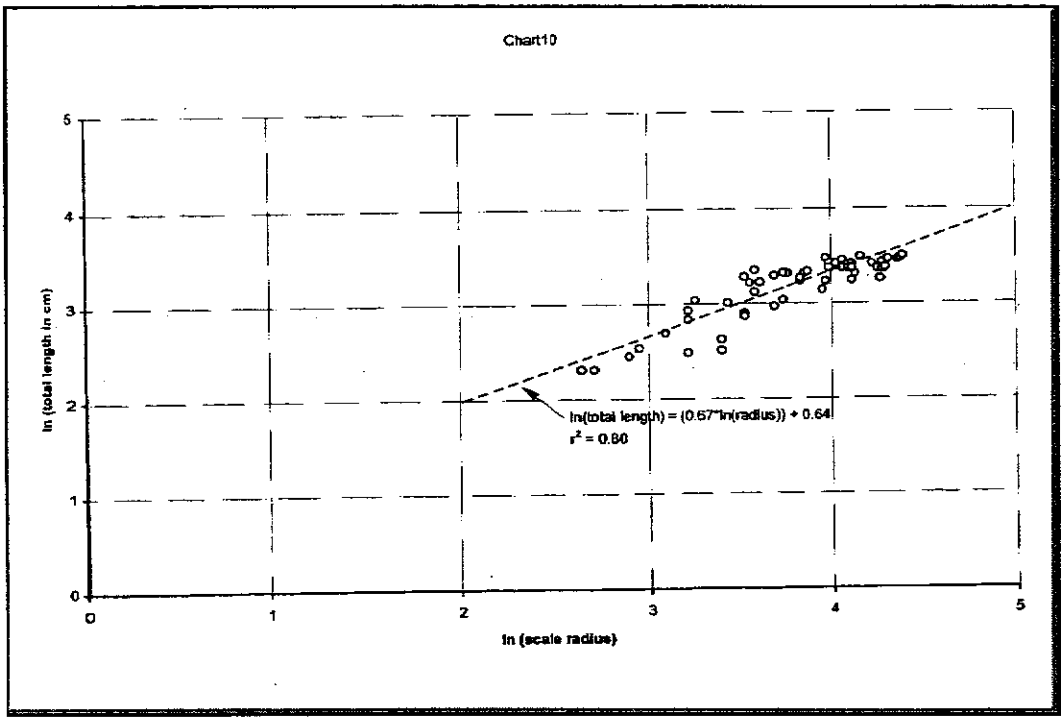
Appendix Figure 21. Rainbow trout total length vs scale radius after natural logarithm transformation of data for trout sampled from Spada Lake 1979-1980.



Appendix Figure 22. Cutthroat trout total length vs scale radius after natural logarithm transformation of data for trout sampled from Spada Lake 1995-1997.



Appendix Figure 23. Rainbow trout total length vs scale radius after natural logarithm transformation of data for trout sampled from Spada Lake 1995-1997.



Appendix Figure 24. Hybrid trout total length vs scale radius after natural logarithm transformation of data for trout sampled from Spada Lake 1995-1997.

Appendix Table 1. Stocking history of Spada Lake, Snohomish County, Washington.

Site	Date	Species	Strain	Number	No. / Lb	Hatchery
SF Sultan R.	6/17/65	Rainbow	------	70,000	103	Columbia Basin
NF Sultan R.	6/17/65	Rainbow	------	30,000	103	Columbia Basin
Reservoir	6/25/65	Rainbow	------	38,850	35	Arlington
Reservoir	8/11/65	Rainbow	------	17,500	35	Arlington
Reservoir	8/18/65	Rainbow	------	17,500	35	Arlington
Reservoir	6/23/66	Rainbow	------	21,770	137	Univ. of Wash.
Reservoir	6/28/66	Cutthroat	Tokul Creek	5,500	654	Tokul Creek
Reservoir	6/28/66	Cutthroat	Tokul Creek	8,500	568	Tokul Creek
Reservoir	8/04/66	Rainbow	------	20,020	36	Arlington
Reservoir	8/09/66	Rainbow	------	8,550	38	Arlington
Reservoir	8/09/66	Rainbow	------	20,900	38	Arlington
Reservoir	8/09/66	Rainbow	------	11,473	36	Arlington
Reservoir	8/10/66	Rainbow	------	19,074	33	Arlington
Reservoir	7/14/67	Rainbow	------	74,520	54	Tokul Creek
Reservoir	6/24/68	Rainbow	------	25,000	50	Tokul Creek
Reservoir	5/16/69	Rainbow	------	25,088	128	Tokul Creek
Reservoir	6/24/69	Rainbow	------	100,750	325	Arlington
Reservoir	5/14/70	Rainbow	------	25,110	155	Tokul Creek
Reservoir	6/29/70	Rainbow	------	65,250	450	Arlington
Reservoir	6/29/70	Rainbow	------	33,600	700	Arlington
Reservoir	5/26/71	Rainbow	------	69,305	170	Arlington
Reservoir	5/24/72	Rainbow	------	25,200	100	Tokul Creek
Reservoir	5/26/72	Rainbow	------	25,000	100	Tokul Creek
Reservoir	6/01/72	Rainbow	------	41,515	95	Tokul Creek
Reservoir	6/06/73	Rainbow	------	76,440	210	Tokul Creek
Reservoir	6/06/73	Rainbow	------	23,680	160	Tokul Creek
Reservoir	5/07/74	Rainbow	------	61,160	100	Tokul Creek
Reservoir	5/24/74	Rainbow	------	15,000	125	Tokul Creek
Reservoir	6/05/74	Rainbow	------	81,100	400	Arlington
Reservoir	9/09/74	Rainbow	------	13,860	77	Tokul Creek
Reservoir	5/22/75	Rainbow	------	126,658	178	Tokul Creek
Reservoir	6/04/75	Rainbow	------	25,500	170	Tokul Creek
Reservoir	5/20/76	Rainbow	------	125,100	135	Tokul Creek
Reservoir	4/27/77	Rainbow	------	35,200	220	Tokul Creek
Reservoir	5/27/77	Rainbow	------	124,920	200	Tokul Creek
Reservoir	7/26/79	Rainbow	Goldendale	116,403	69	Puyallup

Appendix Table 2. Fishing regulations history of Spada Lake and tributaries, Snohomish County, Washington, as published by the Washington Department of Game/Wildlife.

Time Frame	Affected Water/s	Open Fishery (Y/N)	Catch Limit	Trout Min Length	Bait Ban (Y/N)	Motor Ban (Y/N)	Selective Fishery Reg's	Open Season	"Add'l Reg's As Posted"
1945 - 53	Sultan R.	No	(NA)	(NA)	(NA)	(NA)	(NA)	late May-Oct 31	No
1954 - 60	Sultan R.	Yes	15	6"	No	(NA)	(NA)	late May-Oct 31	No
1961 - 64	Sultan R.	Yes	12	6"	No	(NA)	(NA)	late May-Oct 31	No
1965 - 66	Spada L.	Yes	12	6"	No	No	(NA)	late Apr-Oct 31	No
1967 - 69	Spada L.	Yes	12	6"	Yes	Yes	(NA)	late Apr-Oct 31	No
1970 - 79	Spada L.	Yes	12	6"	Yes	Yes	(NA)	late Apr-early Sept	Yes
1980 - 83	Spada L.	Yes	8	6"	Yes	Yes	(NA)	late Apr-early Sept	Yes
1984 - 85	Spada L.	Yes	8	6"	No	Yes	(NA)	late Apr-early Sept	No
1986 - 87	Spada L.	Yes	8	(NA)	No	Yes	(NA)	late Apr-early Sept	No
1988 - 93	Spada L.	Yes	5	12"	Yes	Yes	No	late Apr-Oct 31	No
1994 - 98	Spada L.	Yes	5	12"	Yes	Yes	Yes	late Apr-Oct 31	No
1965 - 79	Spada Tribs	Yes	12	6"	No	(NA)	(NA)	late May-Oct 31	(1971-83)
1980 - 85	Spada Tribs	Yes	8	6"	No	(NA)	(NA)	late May-Oct 31	(1971-83)
1986 - 98	Spada Tribs	No	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

Appendix Table 3. Average total lengths (mm) of brown bullhead at the end of each year of life. Data from Wydoski and Whitney (1979).

	AGE						
	1	2	3	4	5	6	7
Little River, MD	89	178	257	310	356	---	---
Monocracy River, MD	145	203	236	---	---	---	---
Lake Butte des Morts, WI	---	152	191	239	264	---	---
Ten Mile Lake, OR	112	203	248	269	274	287	---
Lake Washington (females)	69	119	198	248	279	292	297

Appendix Table 4. Brown bullhead total length, weight, and Fulton-type condition factor (K) from Spada Lake, 1997.

Length Cohort	n	Mean Length	Mean Weight	K
87 to 106 mm	6	96	9	1.05
111 to 165 mm	77	141	32	1.15
170 to 216 mm	23	194	87	1.18
more than 220 mm	18	252	200	1.25

Note: Relative weight not calculated as equation for brown bullhead not yet universally promulgated. Length breakouts were arbitrarily selected based on length frequencies.

Appendix Table 5. Stocking history of high lakes draining to Spada Lake.

Lake	Date	Species	Number	No. / Lb
Boulder	9/16/66	Golden trout	600	3200
	9/14/68	Mount Whitney Rainbow	250	-----
	9/14/68	Twin Lakes Cutthroat	250	-----
	7/08/78	Sea-run Cutthroat	1,000	1333
	7/18/81	Eastern Brook Char	1,000	180
	9/23/96	Mount Whitney Rainbow	4,007	477
Copper	6/29/65	Eastern Brook Char	9,000	121
	7/17/69	Eastern Brook Char	10,000	200
"Elan"	9/18/65	Golden trout	350	4,400
	9/12/96	Mount Whitney Rainbow	120	323
	9/12/96	Golden trout	120	575
"Elk"		(Sec 4, Twp 28N., Rge 10E)	(Unstocked)	
Lower Greider	7/19/53	Mount Whitney Rainbow	1,690	1,750
	7/12/61	Mount Whitney Rainbow	1,980	90
	8/28/66	Golden trout	600	3,200
	7/12/79	Mount Whitney Rainbow	200	800
	7/10/85	Mount Whitney Rainbow	397	1,250
	8/02/89	Mount Whitney Rainbow	400	500
Upper Greider	7/19/53	Mount Whitney Rainbow	2,110	1,750
	7/12/61	Mount Whitney Rainbow	4,890	240
	8/28/66	Golden trout	400	4,000
	7/17/69	Mount Whitney Rainbow	2,100	350
	7/22/75	Mount Whitney Rainbow	1,200	120
	12/23/95	Rainbow X Golden	207	69
	12/23/95	Golden trout	1,720	94
	12/26/95	Rainbow X Golden	336	56
	9/23/96	Golden trout	1,244	525

Appendix Table 6. Number of fish collected, by species, from Spada Lake and tributaries, 1979-1997.

Year	Date	Site	Gear	No of Samples or Sites	No of Rainbow	No of Cutthroat	No of Hybrids	No of Unknown Trout / fry	No of EB	Total Trout	No of BB
1979	Oct 9	Wmson Cr	BP EF	2	7	2		33		44	
1979	Oct 9	NF Sultan	BP EF	1				88		89	
1979	Oct 9	NF Sultan	BP EF	1		1		27		29	
1979	Nov 30	Reservoir	Gillnets	1	1	1					
1980	Apr 8	SF Sultan	BP EF	1	7					8	
1980	Apr 8	Wmson Cr	BP EF	1	13	4				18	
1980	Apr 9	Reservoir	Gillnets	1	4	3				8	
1980	Apr 15	Reservoir	Gillnets	1	7	3				11	
1980	May 8	Reservoir	Gillnets	1	1	1				3	
1980	May 13	Reservoir	Gillnets	1	5	4				10	
1980	July 15	Reservoir	Gillnets	1	3	1				5	
1980	July 16	SF Sultan	BP EF	1	2	1				4	
1980	July 16	NF Sultan	BP EF	1	6			19		26	
1980	July 16	Wmson Cr	BP EF	1	15	1				17	
1980	Aug 20	Reservoir	Gillnets	1	1	4				6	
1980	Sept 3	NF Sultan	BP EF	1	5	1		47		55	
1980	Sept 4	Wmson Cr	BP EF	1	1	2		23		27	
1980	Sept 5	Reservoir	Gillnets	1	3	4				8	1
1980	Oct 6	SF Sultan	BP EF	1	7					8	
1980	Oct 6	NF Sultan	BP EF	1	2			60		63	
1980	Oct 6	Wmson Cr	BP EF	5	2			135		142	
1980	Oct 8	Reservoir	Gillnets	1	4	6				11	4
1995	Apr 10	Reservoir	Gillnets	4	15	3	15	3	0	40	0
1996	May 23	Reservoir	Gillnets	3	3	2	0	0	0	8	4
1996	July 8	Reservoir	Gillnets	1	2	0	1	0	0	4	63
1996	July 17	Reservoir	Gillnets	4	9	6	4	0	0	23	28
1996	July 18	Reservoir	Gillnets	3	4	2	2	0	0	11	4
1996	Sept 11	Wmson Cr	BP EF	1	21	0	1	0	0	23	0
1996	Sept 12	SF Sultan	BP EF	2	3	1	2	2	0	10	0
1996	Sept 12	NF Sultan	BP EF	1	0	0	0	2	0	3	0
1996	Sept 12	Elk Cr	BP EF	2	8	0	1	4	0	15	0
1996	Sept 13	Wmson Cr	BP EF	3	11	4	1	7	1	27	0
1996	Oct 3	Reservoir	Gillnets	3	9	9	2	0	0	23	47
1997	Apr 10	Reservoir	Gillnets	6	18	30	6	0	0	60	4
1997	Apr 24	Reservoir	Gillnets	4	12	7	5	0	1	29	0
1997	May 8	Reservoir	Gillnets	7	12	7	8	0	0	34	2
1997	May 22	Reservoir	Gillnets	8	21	9	11	0	0	49	37
1997	June 5	Reservoir	Gillnets	7	48	10	14	0	0	79	4
1997	June 19	Reservoir	Gillnets	6	3	2	2	0	0	13	18
1997	June 20	Reservoir	Gillnets	7	29	17	10	3	0	66	25
1997	July 1	Reservoir	Gillnets	6	10	13	6	0	0	35	29
1997	July 16	Reservoir	Gillnets	6	25	21	7	0	0	59	305
1997	Aug 4	Reservoir	Gillnets	8	8	7	1	0	0	24	93
1997	Aug 17	Reservoir	Gillnets	2	5	6	3	0	0	16	16
1997	Aug 18	Reservoir	Gillnets	1	1	0	0	0	0	2	15
1997	Sept 8	Reservoir	Gillnets	2	22	5	3	0	0	32	13
1997	Sept 22	Reservoir	Gillnets	3	25	11	7	0	0	46	20
1997	Oct 9	Reservoir	Gillnets	9	56	20	23	0	0	108	6
1997	Nov 13	Reservoir	Gillnets	4	2	18	9	0	0	33	0
				Totals	478	249	144	453	2	1464	738

Appendix Table 7. The number of fish sampled from Spada Lake during creel surveys, 1986-1995.

Year	Rainbow	Cutthroat	Hybrids	Brook Char	Total Trout	Brown Bullhead	Coho
1979	198	287	- - - -	0	485	1	0
1985	7839	9847	- - - -	0	17686	0	89
1986	1597	2612	572	0	4781	2	29
1987	2376	2480	355	0	5211	8	0
1988	125	166	36	0	327	2	0
1989	58	112	33	0	203	0	0
1992	62	86	41	0	189	0	0
1995	21	29	37	0	87	0	0
Totals:	12,276	15,619	1,074	0	28,969	13	118

Appendix Table 8. Miscellaneous measurements of metal ions in Spada Lake and its tributaries, 1983-1992. The "bottom" of Spada Lake is one to five feet above the substrate. Spada Lake sampled from the log boom buoy. All values are in mg/L.

			MANGANESE				IRON			
Year	Date	Depth	Spada Lake	Williamson Creek	NF Sultan River	SF Sultan River	Spada Lake	Williamson Creek	NF Sultan River	SF Sultan River
1983	05/13	Surface		0.010	0.010	0.010		0.050	0.050	0.050
1984	04/13	Surface		0.027	0.010	0.010		0.050	0.050	0.050
1988	*02/28*	Top	*0.018*		*0.002*				*0.010*	
			0.018							
1988	10/20	Top	0.011				0.080			
		Bottom	0.033				0.680			
1988	*12/02*	Top	*0.010*				*0.150*			
		Bottom	0.190				2.200			
1991	06/01	Top	0.006				0.080			
		Bottom	0.036				0.290			
1991	*12/08*	Top	*0.029*				0.292			
		Bottom	0.060				2.130			

Appendix Table 9. Secchi transparency depths (ft) in Spada Lake, with estimated euphotic zone, 1995-1997.

Year	Date	Site L2	Site L4	Site LB	Other Locations	(Site)	Mean of All Sites	Estimated Euphotic Zone	Mean	Range	Variance
	10 Apr		7.5				7.5	19.5			
	24 Apr		5.5				5.5	14.3			
	8 May				7.6	SS5	7.6	19.8			
	23 May				10.4	NS4	10.4	27.0			
	6 June	18.8					18.8	48.8			
	19 June	17.3	18.5				17.9	46.5			
	3 July	24.0					24.0	62.4			
1997	17 July		11.1				11.1	28.9	30.4	14.3 - 62.4	160.3
	4 Aug	11.5					11.5	29.9			
	18 Aug			13.3			13.3	34.5			
	29 Aug	11.6		12.8			12.2	31.7			
	8 Sept				10.8	D3	10.8	28.1			
	23 Sept				8.8	NS4	8.8	22.9			
	9 Oct				7.0	N Bay 2	7.0	18.2			
	20 Oct			9.0			9.0	23.4			
	1 Apr	3.1					3.1	8.1			
	1 May	4.5	4.0	4.8			4.4	11.5			
	24 May	9.2					9.2	23.9			
	3 June	15.0	15.7				15.4	39.9			
1996	3 July	18.2	16.0				17.1	44.5	24.8	8.1 - 44.5	140.3
	2 Aug	12.5	5.0				8.8	22.8			
	3 Sept	8.8	6.0				7.4	19.2			
	4 Oct	12.0	9.5		11.5	NS4	11.0	28.6			
	11 Apr	4.1					4.1	10.7			
	3 May	7.0	6.9				7.0	18.1			
	1 June	16.0	12.5				14.3	37.1			
1995	18 July	15.0	13.0				14.0	36.4	28.2	10.7 - 37.1	90.8
	1 Aug	13.3	12.9				13.1	34.1			
	1 Sept	14.0	12.7				13.4	34.7			
	2 Oct	10.5	9.9				10.2	26.5			

Appendix Table 10. Miscellaneous measurements of conductivity (uS/cm) of Spada Lake. Midwater column samples taken from the power tunnel at the powerhouse 1992-1996. Surface water samples from Spada Lake (1997) and its major tributaries are also shown.

Year	Date	Spada Lake (Power Tunnel)	Annual Mean	Williamson Creek	North Fork Sultan River	South Fork Sultan River	Elk Creek
1983	May 13			40	20	20	20
1984	April 13			40	30	20	
1992	Jan 12	25					
	Jan 30	26					
	Mar 6	25					
	Mar 17	24					
	Apr 19	24					
	June 12	23					
	June 30	23					
	July 16	22					
	Aug 17	21					
	Sept 19	21					
	Oct 20	25					
	Nov 29	27	23.8				
1993	Jan 22	25					
	Feb 11	23					
	Mar 18	25					
	Apr 8	24					
	May 11	23					
	June 21	23	23.8				
1994	May 12	22					
	Aug 1	21	21.5				
1995	Feb 22	20					
	June 14	21	20.5				
1996	Mar 7	21					
	June 17	20					
	Aug 8	22					
	Nov 13	24	21.8				
1997	Sept 8	20.6					

Appendix Table 11. Spada Lake net set data, 1995-96.

Set Date	Site	Depth	Net Type	Mesh Size	Time In	Time Out	Total Hours	Total Trout	Total BB	Trout CPUE	BB CPUE	Verticals: Vert's Hrs X d	Verticals: Bartoo Trout CPUE	Verticals: Adjusted Trout CPUE	Estimated Nighttime Hours	Horiz. Nets Trout CPUE	Nightly Mean CPUE
4/10/95	WCE		SH	Var	14:15	06:00[1]	15.75	10	0	0.635	0.000				10.667	0.937	
4/10/95	SFE		SH	Var	14:15	06:00[1]	15.75	1	0	0.063	0.000				10.667	0.094	
4/10/95	W1		SH	Var	14:15	06:00[1]	15.75	14	0	0.889	0.000				10.667	1.312	
4/10/95	SFW		SH	Var	14:15	06:00[1]	15.75	11	0	0.698	0.000				10.667	1.031	0.844
5/23/96	SS4	41	V	1.5	13:07	10:30	21.37	4	0	0.187	0.000	876.25	0.0046	4.565			1.921
5/23/96	SF2	110	V	2.5	13:20	10:10	20.84	0	4	0.000	0.192	2291.90	0.0000	0.000			
5/23/96	W1	40	V	0.75	14:02	10:55	20.88	1	0	0.048	0.000	835.10	0.0012	1.197			
7/8/96	SF1	40	V	1.0	16:21	09:35	17.22	1	3	0.058	0.174	688.70	0.0015	1.452			
7/8/96	SF1	38	V	1.5	16:15	09:14	17.00	1	2	0.059	0.118	645.97	0.0015	1.548			
7/8/96	SF1	40	V	2.0	16:07	09:10	17.05	1	37	0.059	2.170	681.98	0.0015	1.466			1.117
7/8/96	SF1	40	V	2.5	15:55	08:15	16.33	0	21	0.000	1.286	653.38	0.0000	0.000			
7/17/96	NS4	70	V	0.75	16:00	08:37	16.63	2	0	0.120	0.000	1164.29	0.0017	1.718			
7/17/96	NS4	70	V	1.0	16:30	09:12	16.72	2	0	0.120	0.000	1170.12	0.0017	1.709			1.544
7/17/96	NS4	70	V	1.5	16:15	08:57	16.70	2	0	0.120	0.000	1169.11	0.0017	1.711			
7/17/96	NS4	70	V	2.0	16:10	08:46	16.59	1	4	0.060	0.241	1161.38	0.0009	0.861			
7/17/96	NS4	70	V	2.5	16:25	09:03	16.62	2	1	0.120	0.060	1163.57	0.0017	1.719			
7/17/96	WCW		SH	Var	17:40	13:37	19.94	0	10	0.000	0.501				8.5	0.000[2]	
7/17/96	WCW		SH	Var	17:30	13:30	20.00	6	12	0.300	0.600				8.5	0.706[3]	
7/17/96	D1		SH	Var	16:55	10:20	17.42	4	1	0.230	0.057				8.5	0.471[4]	0.294
7/17/96	SS1		SH	Var	17:10	10:20	17.17	0	0	0.000	0.000				8.5	0.000	
7/18/96	SS1	112	V	0.75	11:45	09:47	22.04	0	0	0.000	0.000	2468.66	0.0000	0.000			
7/18/96	SS1	92	V	1.0	11:45	09:22	21.62	0	0	0.000	0.000	1988.75	0.0000	0.000			
7/18/96	SS1	68	V	1.5	11:52	09:30	21.62	0	0	0.000	0.000	1470.43	0.0000	0.000			
7/18/96	SS1	109	V	2.0	11:58	09:38	21.66	0	1	0.000	0.046	2360.68	0.0000	0.000			
7/18/96	SS1	62	V	2.5	11:40	09:57	22.27	0	0	0.000	0.000	1381.01	0.0000	0.000			0.000
7/18/96	NS2		FH	Var	12:30	08:55	20.42	4	1	0.196	0.049				8.5	0.471[5]	
7/18/96	NS3		SH	Var	13:15	08:30	19.25	3	2	0.156	0.104				8.5	0.353[6]	0.314
7/18/96	NS3		SH	Var	13:01	08:45	19.73	1	0	0.051	0.000				8.5	0.118	
10/3/96	NS4-E	50	V	1.0	15:23	10:21	18.97	0	0	0.000	0.000	948.36	0.0000	0.000			
10/3/96	NS4-E	48	V	1.5	15:00	10:57	19.95	1	1	0.050	0.050	957.66	0.0010	1.044			
10/3/96	NS4-E	50	V	2.0	15:19	10:26	19.12	3	6	0.157	0.314	956.16	0.0031	3.138			
10/3/96	NS4-E	50	V	2.5	15:10	10:43	19.56	0	4	0.000	0.204	978.00	0.0000	0.000			
10/3/96	NS4-E	50	V	3.0	15:15	10:38	19.38	0	0	0.000	0.000	969.00	0.0000	0.000			0.650
10/3/96	NS4-W	65	V	1.0	16:24	12:15	19.85	0	0	0.000	0.000	1290.28	0.0000	0.000			
10/3/96	NS4-W	64	V	1.5	16:19	12:09	19.83	0	0	0.000	0.000	1269.20	0.0000	0.000			
10/3/96	NS4-W		V	2.0	16:15	11:37	19.38	2	5	0.103	0.258	1201.41	0.0017	1.665			
10/3/96	NS4-W	62	V	2.5	16:10	11:55	19.74	0	4	0.000	0.203	1263.67	0.0000	0.000			
10/3/96	SS4	64	FH	Var	16:40	10:15	17.58	14	24	0.796	1.365				12.4	1.129[7]	

[1] Times not noted; used sunset, etc.
[2] Poor net condition.
[3] 1.5": 2 trout, 8 BB; 1": 4 trout, 4 BB.
[4] 1.5": 2 trout, 1 BB; 1": 2 trout.
[5] 1": 2 Rb, 1 BB; 1.5": 1 Rb; 2": 1 Rb.
[6] All in 1.5" mesh.
[7] Most BBs small and in 0.5" mesh.

Appendix Table 12. Spada Lake net set data, 1995-97.

Set Date	Site	Depth	Net Type	Mesh Size	Time In	Time Out	Total Hours	Total Trout	Total BB	Trout CPUE	BB CPUE	Verticals: Vert's Hrs X d	Verticals: Bartoo Trout CPUE	Verticals: Adjusted Trout CPUE	Estimated Nighttime Hours	Horiz. Nets CPUE	Nightly Mean CPUE
4/10/97	NS2		FH	Var	11:15	09:15	22.00	15	0	0.682	0.000				10.67	1.406	
4/10/97	N Bay 2		SH	Var	11:35	08:56	21.35	4	1	0.187	0.047				10.67	0.375	
4/10/97	NS3		SH	Var	11:27	09:38	22.18	4	3	0.180	0.135				10.67	0.375	
4/10/97	WCW		SH	Var	12:00	08:38	20.63	4	0	0.194	0.000				10.67	0.375	0.828
4/10/97	MWC		SH	Var	12:07	08:31	20.40	11	0	0.539	0.000				10.67	1.031	
4/10/97	SWC		FH	Var	12:17	08:20	20.05	15	0	0.748	0.000				10.67	1.406	
4/24/97	NWC		SH	Var	16:08	08:45	16.62	4	0	0.241	0.000				9.83	0.407	
4/24/97	SWC		FH	Var	15:58	08:25	16.45	8	0	0.486	0.000				9.83	0.814	
4/24/97	N Bay 2		SH	Var	15:40	09:43	18.05	4	0	0.222	0.000				9.83	0.407	0.534
4/24/97	NS2		FH	Var	13:20	09:20	20.00	5	0	0.250	0.000				9.83	0.509	
4/24/97	NS4	67	V	1.0	14:30	09:57	19.45	0	0	0.000	0.000	1303.14	0.0000	0.000			
4/24/97	NS4	66	V	1.5	14:37	10:03	19.43	1	0	0.051	0.000	1282.60	0.0008	0.780			
4/24/97	NS4	62	V	2.0	14:48	10:12	19.40	3	0	0.155	0.000	1202.80	0.0025	2.494			
4/24/97	NS4	60	V	2.0	14:58	12:48	21.83	1	0	0.046	0.000	1310.00	0.0008	0.763			
4/24/97	NS4	63	V	2.5	14:42	10:08	19.43	0	0	0.000	0.000	1224.30	0.0000	0.000			0.673
4/24/97	NS4	61	V	2.5	14:54	10:19	19.42	0	0	0.000	0.000	1184.42	0.0000	0.000			
5/08/97	NS2		FH	Var	16:40	09:02	16.37	10	0	0.611	0.000				9.17	1.091	
5/08/97	SS4		SH	Var	17:33	09:25	15.87	3	1	0.189	0.063				9.17	0.327	
5/08/97	S Bay 1		SH	Var	17:23	09:39	16.27	5	1	0.307	0.061				9.17	0.545	0.567
5/08/97	WWC		SH	Var	17:07	10:38	17.52	3	0	0.171	0.000				9.17	0.327	
5/08/97	E MWC		SH	Var	17:03	10:46	17.72	5	0	0.282	0.000				9.17	0.545	
5/08/97	SS4	47	V	1.5	15:35	09:58	18.38	0	0	0.000	0.000	864.01	0.0000	0.000			
5/08/97	SS4	54	V	2.0	15:40	10:04	18.40	0	0	0.000	0.000	993.59	0.0000	0.000			
5/08/97	SS4	56	V	2.5	15:50	09:53	18.05	0	0	0.000	0.000	1010.81	0.0000	0.000			
5/08/97	SS4	47	V	1.5	15:43	10:08	18.42	1	0	0.054	0.000	865.58	0.0012	1.155			
5/08/97	NS4	67	V	3.0	16:16	11:07	18.85	0	0	0.000	0.000	1262.94	0.0000	0.000			
5/08/97	NS4	67	V	1.0	16:00	11:12	19.20	0	0	0.000	0.000	1286.40	0.0000	0.000			
5/08/97	NS4	67	V	2.5	16:08	11:18	19.17	0	0	0.000	0.000	1284.16	0.0000	0.000			0.128
5/08/97	NS4	68	V	2.0	16:05	11:22	19.28	0	0	0.000	0.000	1311.26	0.0000	0.000			
5/08/97	NS4	67	V	1.0	16:12	11:26	19.23	0	0	0.000	0.000	1288.64	0.0000	0.000			
5/22/97	NS2		FH	Var	13:05	08:15	19.17	10	0	0.522	0.000				8.6	1.163	
5/22/97	SS4		SH	Var	13:26	08:40	19.23	0	3	0.000	0.156				8.6	0.000	
5/22/97	S Bay 1		SH	Var	13:33	08:48	19.25	4	3	0.208	0.156				8.6	0.465	
5/22/97	SRN/SRS		SH	Var	13:54	11:25	21.52	5	2	0.232	0.093				8.6	0.581[1]	0.714
5/22/97	NF Sultan		SH	Var	14:00	11:10	21.17	12	0	0.567	0.000				8.6	1.395	
5/22/97	WWC		SH	Var	14:14	10:24	20.17	9	14	0.446	0.694				8.6	1.047	
5/22/97	EWC		SH	Var	14:18	10:50	20.53	3	12	0.146	0.584				8.6	0.349	
5/22/97	NS4	70	V	1.0	12:33	09:57	21.40	1	0	0.047	0.000	1497.99	0.0007	0.668			
5/22/97	NS4	70	V	1.5	12:30	10:02	21.53	0	0	0.000	0.000	1507.35	0.0000	0.000			

[1] Predation-tangled.

Appendix Table 12 continued.

Set Date	Site	Depth	Net Type	Mesh Size	Time In	Time Out	Total Hours	Total Trout	Total BB	Trout CPUE	BB CPUE	Verticals: Vert's Hrs X d	Verticals: Bartoo Trout CPUE	Verticals: Adjusted Trout CPUE	Estimated Nighttime Hours	Horiz. Nets CPUE	Nightly Mean CPUE
5/22/97	NS4	70	V	2.5	12:49	09:25	20.60	0	1	0.000	0.049	1441.99	0.0000	0.000			
5/22/97	NS4	70	V	2.0	12:36	09:47	21.18	2	0	0.094	0.000	1482.84	0.0013	1.349			
5/22/97	NS4	70	V	2.5	12:40	09:43	21.05	0	0	0.000	0.000	1473.49	0.0000	0.000			
5/22/97	NS4	70	V	3.0	12:42	09:40	20.97	0	0	0.000	0.000	1467.66	0.0000	0.000			0.288
5/22/97	NS4	70	V	2.0	12:46	09:34	20.80	0	2	0.000	0.096	1456.01	0.0000	0.000			
6/05/97	NS2	60	FH	Var	09:45	11:20	25.58	11	0	0.430	0.000				8.17	1.346	
6/05/97	N Bay 2	21	SH	Var	10:00	11:45	25.75	5	0	0.194	0.000				8.17	0.612	
6/05/97	SS4		SH	Var	11:00	13:10	26.17	6	1	0.229	0.038				8.17	0.734	
6/05/97	WWC		SH	Var	10:35	12:08	25.55	24	0	0.939	0.000				8.17	2.938	
6/05/97	EWC		SH	Var	10:43	12:25	25.70	18	1	0.700	0.039				8.17	2.203	1.346
6/05/97	NF Sultan		SH	Var	10:15	12:43	26.47	11	0	0.416	0.000				8.17	1.346	
6/05/97	SRN/SRS		SH	Var	10:25	12:55	26.50	2	2	0.075	0.075				8.17	0.245	
6/19/97	NS2		FH	Var	15:35	08:28	16.88	0	0	0.000	0.000				8.02	0.000	
6/19/97	N Bay 2		FH	Var	16:00	08:56	16.93	1	1	0.059	0.059				8.02	0.125	
6/19/97	N Bay 2		SH	Var	15:51	08:46	16.92	2	0	0.118	0.000				8.02	0.249	
6/19/97	SS4		SH	Var	16:07	09:10	17.05	1	1	0.059	0.059				8.02	0.125	0.143
6/19/97	S Bay 1		SH	Var	16:11	09:17	17.10	1	1	0.058	0.058				8.02	0.125	
6/19/97	SS5		SH	Var	16:17	09:25	17.13	0	0	0.000	0.000				8.02	0.000	
6/19/97	WWC		SH	Var	16:27	09:35	17.13	3	15	0.175	0.875				8.02	0.374	
6/20/97	Bear Cr		SH	Var	10:15	10:05	23.83	5	6	0.210	0.252				8	0.625	
6/20/97	DBH		FH	Var	10:30	10:20	23.84	0	0	0.000	0.000				8	0.000	
6/20/97	NF Sultan		SH	Var	10:35	10:30	23.92	27	6	1.129	0.251				8	3.375	
6/20/97	SFE		SH	Var	11:00	08:11	21.18	0	7	0.000	0.330				8	0.000	
6/20/97	SFR-S		SH	Var	11:06	08:10	21.07	9	0	0.427	0.000				8	1.125	1.054
6/20/97	SWC		FH	Var	10:02	09:30	23.47	10	2	0.426	0.085				8	1.250	
6/20/97	WWC		SH	Var	09:56	09:10	23.23	8	4	0.344	0.172				8	1.000	
7/01/97	NS2	70	FH	Var	15:30	10:22	18.87	20	1	1.060	0.053				8.1	2.469	
7/01/97	SS1		SH	Var	15:40	10:48	19.13	5	1	0.261	0.052				8.1	0.617	
7/01/97	SS2/SFW	15	FH	Var	15:55	09:57	18.03	2	13	0.111	0.721				8.1	0.247	
7/01/97	N Bay 2		SH	Var	16:06	11:13	19.12	1	2	0.052	0.105				8.1	0.123	0.576
7/01/97	S Bay 1		SH	Var	16:18	11:40	19.37	0	1	0.000	0.052				8.1	0.000	
7/01/97	SS4		SH	Var	16:25	11:27	19.03	0	11	0.000	0.578				8.1	0.000[1]	
7/16/97	DBH		FH	Var	14:22	09:15	18.88	34	210	1.801	11.121				8.43	4.033[2]	
7/16/97	S Bay 1		SH	Var	14:42	10:20	19.63	3	13	0.153	0.662				8.43	0.356	
7/16/97	N Bay 2		SH	Var	14:50	10:35	19.75	2	11	0.101	0.557				8.43	0.237[3]	
7/16/97	NS2		FH	Var	15:00	10:50	19.83	10	3	0.504	0.151				8.43	1.186	1.048
7/16/97	SS2/SFW		SH	Var	15:20	11:10	19.83	0	8	0.000	0.403				8.43	0.000	
7/16/97	SFW		SH	Var	15:30	11:26	19.93	4	60	0.201	3.010				8.43	0.474	

[1] Predation-tangled. [2] Many YOY Bbs. [3] Much woody debris in net.

Appendix Table 12 continued.

Set Date	Site	Depth	Net Type	Mesh Size	Time In	Time Out	Total Hours	Total Trout	Total BB	Trout CPUE	BB CPUE	Verticals Vert's Hrs X d	Verticals Bartoo Trout CPUE	Verticals Adjusted Trout CPUE	Estimated Nighttime Hours	Horiz. Nets CPUE	Nightly Mean CPUE
8/04/97	NS4	78	V	3.0	12:35	08:40	20.08	0	0	0.000	0.000	1566.51	0.0000	0.000			
8/04/97	NS4	35	V	1.5	12:31	08:13	19.70	2	1	0.102	0.051	689.50	0.0029	2.901			
8/04/97	NS4	62	V	2.5	12:28	08:22	19.90	2	0	0.101	0.000	1233.80	0.0016	1.621			
8/04/97	NS4	65	V	2.0	12:42	08:28	19.77	2	0	0.101	0.000	1284.83	0.0016	1.557			
8/04/97	NS4	75	V	2.0	12:38	08:33	19.92	1	0	0.050	0.000	1493.75	0.0007	0.669			1.386
8/04/97	NS4	68	V	1.5	12:24	08:45	20.35	2	0	0.098	0.000	1383.79	0.0014	1.445			
8/04/97	NS4	66	V	2.5	12:47	08:51	20.07	2	0	0.100	0.000	1324.40	0.0015	1.510			
8/04/97	NS2		FH	Var	13:18	09:38	20.33	5	6	0.246	0.295				9.2	0.543	
8/04/97	SS4		FH	Var	14:00	10:24	20.40	0	39	0.000	1.912				9.2	0.000	
8/04/97	NB2		SH	Var	13:43	10:10	20.45	1	33	0.049	1.614				9.2	0.109	
8/04/97	NS4/WCW		SH	Var	14:07	10:35	20.47	2	1	0.098	0.049				9.2	0.217	
8/04/97	SB1		SH	Var	13:52	10:17	20.42	0	4	0.000	0.196				9.2	0.000	0.124
8/04/97	NS1		SH	Var	13:25	09:53	20.47	0	9	0.000	0.440				9.2	0.000	
8/04/97	SS1		SH	Var	13:32	10:00	20.47	0	0	0.000	0.000				9.2	0.000	
8/17/97	NS2		FH	Var	19:45	08:27	12.70	1	14	0.079	1.102				9.87	0.101	
8/17/97	NS4	50	V	1.5	19:07	09:20	14.22	0	1	0.000	0.070	710.83	0.0000	0.000			
8/17/97	NS4	16	V	1.0	19:28	08:52	13.40	5	0	0.373	0.000	214.40	0.0233	23.321			
8/17/97	NS4	70	V	2.0	19:25	09:50	14.42	1	0	0.069	0.000	1009.16	0.0010	0.991			
8/17/97	NS4	46	V	1.5	18:58	09:00	14.03	4	1	0.285	0.071	645.53	0.0062	6.196			
8/17/97	NS4	55	V	2.0	19:11	08:27	13.27	0	0	0.000	0.000	729.66	0.0000	0.000			
8/17/97	NS4	75	V	2.5	19:23	09:43	14.33	1	0	0.070	0.000	1075.00	0.0009	0.930			3.966
8/17/97	NS4	50	V	1.0	19:04	09:10	14.10	3	0	0.213	0.000	705.00	0.0043	4.255			
8/17/97	NS4	75	V	3.0	19:18	09:30	14.20	0	0	0.000	0.000	1064.99	0.0000	0.000			
8/17/97	NS4	62	V	2.5	19:15	09:40	14.42	0	0	0.000	0.000	893.84	0.0000	0.000			
8/18/97	SFW	21	V	1.5	14:58	10:47	19.82	0	3	0.000	0.151	416.15	0.0000	0.000			
8/18/97	SFW	35	V	1.0	14:48	10:43	19.92	1	3	0.050	0.151	697.08	0.0014	1.435			
8/18/97	SFW	33	V	2.0	14:54	10:37	19.72	0	2	0.000	0.101	650.65	0.0000	0.000			
8/18/97	SFW	38	V	1.5	15:15	10:27	19.20	0	4	0.000	0.208	729.60	0.0000	0.000			
8/18/97	SFW	19	V	2.0	15:26	10:23	18.95	0	2	0.000	0.106	360.05	0.0000	0.000			0.179
8/18/97	SFW	28	V	2.5	15:29	10:16	18.78	0	1	0.000	0.053	525.93	0.0000	0.000			
8/18/97	SFW	40	V	3.0	15:32	10:10	18.63	0	0	0.000	0.000	745.33	0.0000	0.000			
8/18/97	SFW	20	V	2.5	15:10	10:55	19.75	0	0	0.000	0.000	395.00	0.0000	0.000			
9/08/97	NS2		FH	Var	17:30	09:06	15.60	17	0	1.090	0.000				11	1.545	
9/08/97	NS4	50	V	1.0	16:48	10:09	17.35	6	5	0.346	0.288	867.50	0.0069	6.916			
9/08/97	NS4	64	V	1.0	16:25	09:40	17.25	3	5	0.174	0.290	1104.00	0.0027	2.717			
9/08/97	NS4	31	V	1.5	16:54	10:25	17.52	1	1	0.057	0.057	543.02	0.0018	1.842			
9/08/97	NS4	55	V	1.5	17:04	10:43	17.65	2	2	0.113	0.113	970.75	0.0021	2.060			
9/08/97	NS4	70	V	2.0	16:35	09:52	17.28	1	0	0.058	0.000	1209.83	0.0008	0.827			
9/08/97	NS4	59	V	2.0	16:45	10:04	17.32	1	0	0.058	0.000	1021.68	0.0010	0.979			1.705
9/08/97	NS4	67	V	2.5	16:41	10:04	17.38	0	0	0.000	0.000	1164.68	0.0000	0.000			
9/08/97	NS4	40	V	2.5	16:57	10:32	17.58	0	0	0.000	0.000	703.33	0.0000	0.000			
9/08/97	NS4	55	V	3.0	17:01	10:35	17.57	0	0	0.000	0.000	966.17	0.0000	0.000			

Appendix Table 12 continued.

Set Date	Site	Depth	Net Type	Mesh Size	Time In	Time Out	Total Hours	Total Trout	Total BB	Trout CPUE	BB CPUE	Verticals			Estimated Nighttime Hours	Horiz. Nets CPUE	Nightly Mean CPUE
												Vert's Hrs X d	Bartoo Trout CPUE	Adjusted Trout CPUE			
9/22/97	SS1		SH	Var	15:38	10:30	18.87	4	9	0.212	0.477				11.8	0.339	
9/22/97	NS2		FH	Var	15:28	10:10	18.70	13	0	0.695	0.000				11.8	1.102	0.720
9/22/97	NS4	27	V	1.0	14:37	08:19	17.70	2	4	0.113	0.226	477.90	0.0042	4.185			
9/22/97	NS4	54	V	1.0	14:56	08:50	17.90	3	3	0.168	0.168	966.61	0.0031	3.104			
9/22/97	NS4	35	V	1.5	14:47	08:26	17.65	1	3	0.057	0.170	617.75	0.0016	1.619			
9/22/97	NS4	35	V	1.5	15:03	09:05	18.03	0	0	0.000	0.000	631.17	0.0000	0.000			
9/22/97	NS4	65	V	2.0	15:00	09:00	18.00	0	0	0.000	0.000	1170.00	0.0000	0.000			1.278
9/22/97	NS4	43	V	2.0	14:45	08:27	17.70	1	0	0.056	0.000	761.10	0.0013	1.314			
9/22/97	NS4	45	V	2.5	15:06	09:10	18.07	0	0	0.000	0.000	812.99	0.0000	0.000			
9/22/97	NS4	55	V	2.5	14:53	08:45	17.87	0	1	0.000	0.056	982.66	0.0000	0.000			
9/23/97	NS2		FH	Var	13:03	08:13	19.17	19	0	0.991	0.000				11.8	1.610	
10/09/97	NS2		FH	Var	12:50	08:47	19.95	9	0	0.451	0.000				12.8	0.703	
10/09/97	SS1		SH	Var	13:02	09:17	20.25	3	0	0.148	0.000				12.8	0.234	
10/09/97	N Bay 2		SH	Var	13:15	09:39	20.40	3	0	0.147	0.000				12.8	0.234	
10/09/97	S Bay 1		SH	Var	13:22	09:55	20.55	12	0	0.584	0.000				12.8	0.938	
10/09/97	Gilb. Crk.		SH	Var	13:34	11:04	21.50	12	0	0.558	0.000				12.8	0.938	
10/09/97	WCW		SH	Var	13:40	11:40	22.00	31	0	1.409	0.000				12.8	2.422	
10/09/97	WCE		FH	Var	13:47	11:28	21.68	12	1	0.553	0.046				12.8	0.938	0.859
10/09/97	SS2/SFW		SH	Var	14:05	10:47	20.70	4	0	0.193	0.000				12.8	0.313	
10/09/97	SFE		SH	Var	14:12	10:12	20.00	13	5	0.650	0.250				12.8	1.016	
11/13/97	NS2		FH	Var	14:30	08:45	18.25	8	0	0.438	0.000				14.6	0.548	
11/13/97	N Bay 2		SH	Var	14:45	08:24	17.65	8	0	0.453	0.000				14.6	0.548	
11/13/97	SWC		FH	Var	15:00	08:02	17.03	7	0	0.411	0.000				14.6	0.479	0.497
11/13/97	SFE		SH	Var	15:15	09:05	17.83	6	0	0.336	0.000				14.6	0.411	

Appendix Table 13. Spada Lake trout total length (mm) at age, 1979-1997.

Year	Age	Species		
		Ct	Rb	Hybrids
1979	Age 1	124	185	199
	Age 2	213	291	334
	Age 3	288	271	401
	Age 4	368		457
	Age 5			
1980	Age 1	121	180	
	Age 2	218	294	
	Age 3	318	367	
	Age 4	406	366	
	Age 5			
1986	Age 1	120	118	114
	Age 2	233	225	247
	Age 3	312	308	321
	Age 4	367	360	336
	Age 5	404		
1992	Age 1	143	139	137
	Age 2	241	232	239
	Age 3	304	288	304
	Age 4	379	330	
	Age 5			
1995	Age 1	127	106	117
	Age 2	218	223	224
	Age 3	289	267	280
	Age 4	310	315	305
	Age 5			
1996	Age 1	111	108	103
	Age 2	217	197	186
	Age 3	267	233	255
	Age 4			
	Age 5			
1997	Age 1	109	97	105
	Age 2	201	179	197
	Age 3	257	238	254
	Age 4	308	239	274
	Age 5			

Appendix Table 14. Back-calculated annual length increments of Spada Lake trout, 1979-1997.

	Sample Year	Brood Year	Age	Increment in Latest Complete Year (cm)	Mean Total Length		Sample Year	Brood Year	Age	Increment in Latest Complete Year (cm)	Mean Total Length
	1979	1978	1	12.23							
		1977	2	9.23	24.2						
		1976	3	7.51	32.4						
		1975	4	7.01	41.9						
	1980	1979	1	11.95							
		1978	2	11.31	26.9						
		1977	3	8.41	31.1						
		1976	4	5.83	31.7						
	1986	1985	1	11.89			1986	1985	1	10.61	
		1984	2	10.50	31.5			1984	2	7.87	26.0
		1983	3	7.15	33.6			1983	3	10.04	32.1
		1982	4	5.64	37.6			1982	4	6.52	37.1
		1981	5	4.97	40.4						
	1992	1991	1	14.00			1992	1991	2	11.105	31.8
		1990	2	10.93	30.8	Rainbow		1990	3	7.70	32.3
Cutthroat		1989	3	7.50	33.7			1989	4	6.59	32.0
		1988	4	7.73	33.3			1988			
	1995	1994	1	12.12			1995	1994	1	10.18	
		1993	2	12.00	29.0			1993	2	10.85	28.4
		1992	3	6.02	32.4			1992	3	4.45	27.8
		1991	4	4.20	31.8						
	1996	1995	1	11.11			1996	1995	1	10.46	
		1994	2	9.41	24.8			1994	2	10.39	26.1
		1993	3	8.31	26.8			1993	3	8.30	25.1
								1992	4	5.97	35.8
	1997	1996	1	9.83			1997	1996	1	12.27	
		1995	2	7.97	20.0			1995	2	7.24	23.6
		1994	3	4.66	26.6			1994	3	5.58	28.5
		1993	4	3.56	30.2			1993	4	1.61	29.3

Appendix Table 15. Mean instantaneous growth rate (G) by age and brood year for rainbow and cutthroat in Spada Lake, 1979-1997. b values used in the calculation of G are from whole-sampling season samples (multiple broods).

Species	Sample Year	Age 1 to 2	Brood Year	Age 2 to 3	Brood Year	Age 3 to 4	Brood Year	Age 4 to 5	Brood Year
Rainbow	1986	1.510	84	0.881	83	0.596	82	-----	
	1992	1.493	90	0.950	89	0.680	88	-----	
	1995	-----	93	-----	92	-----	91	-----	
	1996	-----	94	-----	93	-----		-----	
	1997	1.582	95	0.841	94	0.264	93	-----	
Cutthroat	1979	1.641	77	0.889	76	0.644	75	-----	
	1980	1.940	78	0.971	77	0.496	76	-----	
	1986	1.837	84	0.508	83	0.516	82	0.280	81
	1992	1.579	90	0.815	89	0.600	88	-----	
	1995	-----	93	0.369	92	-----	91	-----	
	1996	1.612	94	1.088	93	-----		-----	
	1997	1.645	95	1.208	94	0.689	93	-----	

Appendix Table 16. Sexual maturity of trout collected in Spada Lake, 1995-1997. Database sorted on Maturity, Date, and Species.

Section	Date	Sp	TLCM	WTGM	Sex	Tot age	Age	Mat
UPRW1	4/11/95	HYB	29.70	230	F			2
WCE	4/11/95	HYB	32.00	229	F			2
SFW	4/11/95	RB	29.90	245	F			2
SFW	4/11/95	RB	31.30	249	F			2
WCE	4/11/95	RB	31.80	270	F			2
SF1	7/9/96	HYB	25.00	125	F	3+		2
NS4	7/18/96	CT	27.10	151	F	2+		2
WCSW	7/18/96	CT	32.60	291	M	3+		2
WCSW	7/18/96	HYB	29.10	210	F	3+		2
ND	7/18/96	RB	18.50	51	F			2
ND	7/18/96	RB	20.70	80	F	2+		2
ND	7/18/96	RB	26.50	160	F	3+		2
WCSW	7/18/96	RB	19.70	68	F			2
N BAY 1	7/19/96	HYB	28.60	182	F	3+		2
N BAY 2	7/19/96	HYB	29.30	210	M			2
NS3	7/19/96	RB	24.50	120	F			2
WC1	9/11/96	RB	13.40	0	M	1+		2
WC2	9/13/96	CT	14.00	29	M	1+		2
WC2	9/13/96	CT	18.30	53	F	1+		2
WC2B	9/13/96	HYB	12.90	22	M			2
WC2	9/13/96	RB	12.50	19	F	1+		2
WC2B	9/13/96	RB	11.10	14	M	0+		2
WC2B	9/13/96	RB	14.80	35	M	1+		2
WC2B	9/13/96	RB	16.10	43	F	1+		2
WC3	9/13/96	RB	10.20	13	M	0+		2

Appendix Table 16. Sexual maturity of trout collected in Spada Lake, 1995-1997. Database sorted on Maturity, Date, and Species.

Section	Date	Sp	TLCM	WTGM	Sex	Tot age	Age	Mat
NS4E	10/4/96	CT	26.70	140	F	2+		2

Appendix Table 16. Continued.

Section	Date	Sp	TLCM	WTGM	Sex	Tot age	Age	Mat
NS4E	10/4/96	CT	28.60	171	F	2+		2
NS4W	10/4/96	CT	29.40	181	F	2+		2
NS4W	10/4/96	HYB	26.90	150	F	2+		2
N BAY 2	4/11/97	RB	23.50	102	F			2
N BAY 2	4/11/97	RB	24.10	109	F			2
NS4	4/25/97	CT	29.00	175	F	3	1.2	2
N BAY 2	4/25/97	EB	21.70	83	F			2
NWC	4/25/97	RB	25.60	155	F	4	1.3	2
SWC	4/25/97	RB	30.50	255	F	4	1.3	2
SS4	5/9/97	CT	25.00	129	M			2
NS2	5/9/97	RB	22.60	88	F	3+	1.2+	2
NS2	5/23/97	CT	21.60	80	M	2+	1.1+	2
WWC	5/23/97	CT	32.30	271	M	4+	1.3+	2
NF SULT	5/23/97	HYB	30.00	262	M	4+	1.3+	2
WWC	5/23/97	HYB	26.60	147	F	3+	1.2+	2
S BAY 1	5/23/97	RB	26.80	159	F	3+	1.2+	2
WWC	6/6/97	CT	24.30	123	M			2
WWC	6/6/97	CT	28.20	179	F			2
WWC	6/6/97	CT	28.40	186	M			2
EWC	6/6/97	HYB	18.50	54	M	2+	1.1+	2
EWC	6/6/97	RB	30.70	277	F			2
NF SULT	6/6/97	RB	39.60	630	F	4+	1.3+	2
WWC	6/6/97	RB	20.20	68	F	2+	1.1+	2
WWC	6/6/97	RB	21.00	74	F	2+	1.1+	2
WWC	6/20/97	CT	25.90	146	F	3	1.2	2
S BAY 1	6/20/97	HYB	27.70	163	F	3+	1.2+	2
NS2	7/2/97	CT	27.00	152	F	2+	1.1+	2
NS2	7/2/97	HYB	18.20	57	F	2+	1.1+	2
SS2/SFW	7/2/97	HYB	20.80	79	F	2+	1.1+	2
SS1	7/2/97	RB	20.00	65	F			2
SS1	7/2/97	RB	21.20	80	F	2+	1.1+	2
N BAY 2	7/17/97	CT	19.30	68	M	2+	2.0+	2
DBH	7/17/97	RB	12.80	21	M	1+		2
DBH	7/17/97	RB	12.80	22	M	1+	1.0+	2
DBH	7/17/97	RB	13.20	22	M	1+		2
NS4	8/5/97	CT	26.20	151	M	2+	1.1+	2
NB2	8/5/97	RB	17.80	55	M	1+	1.0+	2
NS2	9/9/97	CT	29.90	242	M			2
NS4	9/9/97	HYB	14.80	30	M	1+	1.0+	2
NS4	9/9/97	HYB	27.40	180	M			2
NS2	9/24/97	CT	27.20	187	F	3+	1.2+	2
NS2	9/24/97	CT	30.10	177	F	3+	1.2+	2
SS1	9/24/97	CT	26.30	134	M	3+	1.2+	2
SS1	9/24/97	CT	33.10	293	F	3+	2.1+	2
NS2	9/24/97	HYB	24.50	125	M	2+	1.1+	2

Appendix Table 16. Continued.

Section	Date	Sp	TLCM	WTGM	Sex	Tot age	Age	Mat
NS2	9/24/97	RB	19.70	69	M	2+	1.1+	2
NB2	10/10/97	CT	16.80	43	M	1+	1.0+	2
S BAY 1	10/10/97	CT	19.90	72	M			2
S BAY 1	10/10/97	CT	25.00	132	M			2
SB1	10/10/97	CT	25.10	143	F	2+	1.1+	2
SFE	10/10/97	CT	22.60	102	M	2+	2.0+	2
SS2/SFW	10/10/97	CT	26.00	149	M			2
WCW	10/10/97	CT	30.60	253	F			2
NS2	10/10/97	HYB	0.00	0	M			2
S BAY 1	10/10/97	HYB	17.60	49	M			2
SB1	10/10/97	HYB	29.00	211	F	4+	1.3+	2
WCW	10/10/97	HYB	19.90	73	M			2
WCW	10/10/97	HYB	24.80	121	M			2
GILCRK	10/10/97	RB	17.90	54	M	1+	1.0+	2
GILCRK	10/10/97	RB	22.10	105	M	2+	1.1+	2
GILCRK	10/10/97	RB	22.70	102	F			2
GILCRK	10/10/97	RB	23.00	105	F			2
GILCRK	10/10/97	RB	23.00	110	M			2
GILCRK	10/10/97	RB	23.20	101	M			2
S BAY 1	10/10/97	RB	22.20	88	F			2
SFE	10/10/97	RB	21.60	96	F			2
SFE	10/10/97	RB	25.80	145	M			2
SFE	10/10/97	RB	28.90	193	F			2
WCE	10/10/97	RB	17.50	54	M	1+	1.0+	2
WCE	10/10/97	RB	19.30	65	M			2
WCE	10/10/97	RB	20.20	81	M	1+	1.0+	2
WCW	10/10/97	RB	18.00	54	M			2
WCW	10/10/97	RB	19.00	63	M			2
WCW	10/10/97	RB	19.10	62	M	1+	1.0+	2
WCW	10/10/97	RB	20.50	72	F			2
WCW	10/10/97	RB	22.00	93	M			2
WCW	10/10/97	RB	27.30	192	M			2
WCW	10/10/97	RB	29.10	210	F	3+	1.2+	2
N BAY 2	11/14/97	CT	31.80	256	M	3+	1.2+	2
NS2	11/14/97	CT	57.10	2225	F	6+	1.5+	2
SFE	11/14/97	CT	27.30	163	F	2+	1.1+	2
SWC	11/14/97	CT	31.60	244	M	3+	1.2+	2
N BAY 2	11/14/97	HYB	30.30	241	F	3+	1.2+	2
SFE	11/14/97	HYB	27.10	162	F	3+	1.2+	2
SFE	11/14/97	HYB	31.70	250	F	3+	1.2+	2
NS2	9/24/97	CT	19.40	68	M	2+	1.1+	2+
WCE	10/10/97	RB	22.00	96	M	3+	3.0+	2+
N BAY 2	11/14/97	CT	25.80	142	M	3+	1.2+	2+
N BAY 2	11/14/97	CT	29.30	201	M	3+	1.2+	2+
N BAY 2	11/14/97	CT	33.50	358	M	4+	1.3+	2+
NS2	11/14/97	CT	27.30	154	M	2+	1.1+	2+
SWC	11/14/97	CT	28.80	174	F	3+	1.2+	2+
SWC	11/14/97	CT	30.80	239	F	3+	1.2+	2+
N BAY 2	11/14/97	HYB	19.30	62	M	1+	1.0+	2+

Appendix Table 16. Continued.

Section	Date	Sp	TLCM	WTGM	Sex	Tot age	Age	Mat
EC2	9/12/96	HYB	19.00	59	F	1+		2.3
EC1	9/12/96	RB	16.60	40	M	1+		2.5
EC2	9/12/96	RB	15.60	34	F			2.5
NS2	5/9/97	RB	21.20	85	F			2.5
EWC	6/6/97	RB	16.80	50	F			2.7
WWC	6/6/97	RB	22.30	100	F			2.7
WWC	6/6/97	RB	23.90	140	F			2.8
WCE	4/11/95	CT	27.80	180	F		1.2	3
SFE	4/11/95	HYB	23.00	92	M	3	2.1	3
UPR W1	4/11/95	HYB	23.70	108	M	3	1.3	3
UPR W1	4/11/95	HYB	24.60	120	M	4	1.2	3
UPR W1	4/11/95	HYB	25.50	121	F	3	1.2	3
UPR W1	4/11/95	HYB	27.10	150	M	3	1.2	3
UPR W1	4/11/95	HYB	32.20	218	F	3	1.1	3
SFW	4/11/95	RB	19.00	59	M	2	1.2	3
UPR W1	4/11/95	RB	30.00	175	F	3	1.2	3
UPR W1	4/11/95	RB	31.60	269	F	3	1.2	3
S BAY 1	5/24/96	CT	20.20	61	M	3		3
MWC	4/11/97	CT	26.60	128	F			3
MWC	4/11/97	CT	28.40	149	M		1.2	3
MWC	4/11/97	CT	30.20	220	M	3	1.2	3
N BAY 2	4/11/97	CT	19.20	55	M	3	1.2	3
N BAY 2	4/11/97	CT	26.70	145	F	3		3
NS2	4/11/97	CT	24.60	122	F			3
NS2	4/11/97	CT	24.90	122	F		1.2	3
NS2	4/11/97	CT	29.00	155	F	3	1.2	3
NS2	4/11/97	CT	30.20	229	F	3	1.3	3
NS3	4/11/97	CT	26.50	138	F	4	2.1	3
NS3	4/11/97	CT	27.30	151	F	3	1.3	3
SWC	4/11/97	CT	18.10	51	M	4	1.2	3
SWC	4/11/97	CT	23.40	90	M	3		3
SWC	4/11/97	CT	25.70	130	M		1.3	3
SWC	4/11/97	CT	29.60	212	M	4	1.1	3
WCW	4/11/97	CT	23.60	120	M	2	1.2+	3
WCW	4/11/97	CT	29.40	193	M	3+		3
MWC	4/11/97	HYB	32.00	274	F		1.2+	3
SWC	4/11/97	HYB	23.50	100	F	3+	1.2+	3
SWC	4/11/97	HYB	26.30	155	F	3+	2.0	3
MWC	4/11/97	RB	20.00	59	M	2	1.2+	3
MWC	4/11/97	RB	20.90	71	M	3+	1.2+	3
NS4	4/25/97	CT	29.00	196	F	3+	1.1+	3
NWC	4/25/97	CT	27.90	180	F	2+		3
NWC	4/25/97	CT	34.80	372	F		1.3+	3
SWC	4/25/97	CT	26.40	152	F	4+		3
SWC	4/25/97	CT	30.20	204	M			3
NS2	4/25/97	HYB	26.80	144	F	2+	2.0+	3
NS2	4/25/97	RB	23.10	99	F			3
NWC	4/25/97	RB	31.90	253	M			3
SWC	4/25/97	RB	18.00	50	M			3

Appendix Table 16. Continued.

Section	Date	Sp	TLCM	WTGM	Sex	Tot age	Age	Mat
EWCM	5/9/97	CT	29.90	211	F	3+	12.+	3
S BAY 2	5/9/97	CT	24.00	110	M	3+	1.2+	3
S BAY 2	5/9/97	CT	29.30	187	M	3+	2.1+	3
WWC	5/9/97	CT	28.30	177	M	3+	1.2+	3
EWCM	5/9/97	HYB	16.70	41	M	4+	1.3+	3
NS2	5/9/97	HYB	31.50	272	F			3
S BAY 2	5/9/97	HYB	30.20	222	F			3
WWC	5/9/97	HYB	25.70	129	F			3
EWCM	5/9/97	RB	28.80	209	M	2+	1.1+	3
EWCM	5/9/97	RB	29.70	210	F	3	1.2	3
NF SULT	5/23/97	CT	19.50	61	M	3+	1.2+	3
NF SULT	5/23/97	HYB	18.70	55	M			3
NF SULT	5/23/97	HYB	19.20	64	M	1+		3
WWC	5/23/97	HYB	20.20	68	M	3+		3
NF SULT	5/23/97	RB	18.00	55	M	3+		3
NF SULT	5/23/97	RB	18.50	53	M	2+		3
NF SULT	5/23/97	RB	18.70	55	M			3
NF SULT	5/23/97	RB	22.70	103	F	3	1.2	3
NF SULT	5/23/97	RB	23.70	112	F	4	4.0	3
WWC	5/23/97	RB	26.50	141	F			3
WWC	5/23/97	RB	30.40	240	F	4	1.3	3
WWC	5/23/97	RB	35.00	353	F	3	1.2	3
EWC	6/6/97	HYB	18.80	60	M	3	1.2	3
NF SULT	6/6/97	RB	19.20	57	M			3
NF SULT	6/6/97	RB	20.80	76	F	3+	1.2+	3
WWC	6/6/97	RB	18.60	62	M	3+	1.2+	3
SWC	4/11/97	CT	31.30	253	M	4+	2.2+	3.5
NS2	5/9/97	RB	18.10	56	F	4+	1.3+	3.5
WCE	4/11/95	CT	32.00	248	F	3+	2.1+	4
SF1	7/9/96	RB	17.50	49	M	3+	1.2+	4
NS4	7/18/96	RB	23.70	97	F	3+	1.2+	4
WCSW	7/18/96	RB	25.00	120	F	3+	1.2+	4
N BAY 2	7/19/96	CT	27.40	150	F			4
SS4	10/4/96	CT	27.90	151	F	4+	1.3+	4
MWC	4/11/97	CT	31.20	235	F			4
SWC	4/11/97	CT	31.00	207	M			4
SWC	4/11/97	CT	34.50	307	F			4
NS2	4/11/97	HYB	29.00	188	F			4
NWC	4/25/97	CT	30.80	221	F	3+	1.2+	4
NWC	4/25/97	RB	27.50	155	F	3+	1.2+	4
NS2	5/9/97	HYB	24.00	122	F	2+	1.1+	4
WWC	5/9/97	HYB	30.80	250	F			4
S BAY 2	5/9/97	RB	29.40	200	F	3+	1.2+	4
EWC	5/23/97	CT	28.80	157	F			4
NS4	5/23/97	CT	28.00	171	F	2+	1.1+	4
WWC	5/23/97	CT	28.50	213	M	3+	1.2+	4
EWC	5/23/97	HYB	25.40	109	F	4+	3.1+	4
NF SULT	5/23/97	HYB	33.60	352	M	3+	1.2+	4
S BAY 1	5/23/97	HYB	29.00	202	F			4

Appendix Table 16. Continued.

Section	Date	Sp	TLCM	WTGM	Sex	Tot age	Age	Mat
NF SULT	5/23/97	RB	24.20	117	M			4
NF SULT	5/23/97	RB	34.00	361	F	2+	1.1+	4
EWC	6/6/97	CT	26.60	149	F	1+	1.0+	4
WWC	6/6/97	CT	26.80	169	F			4
EWC	6/6/97	HYB	23.80	112	F	2+	1.1+	4
EWC	6/6/97	HYB	31.30	258	F			4
EWC	6/6/97	HYB	34.60	363	F	3+	1.2+	4
NS2	6/6/97	HYB	21.40	80	M			4
WWC	6/6/97	HYB	25.70	121	F	3+	1.2	4
EWC	6/6/97	RB	25.20	145	M	2+	1.1+	4
EWC	6/6/97	RB	31.20	263	F	3+	1.2+	4
N BAY 2	6/6/97	RB	21.30	76	F	3+	1.2+	4
NF SULT	6/6/97	RB	36.40	344	F	3+	1.2+	4
NS2	6/6/97	RB	20.70	70	F	3+	2.1+	4
SS4	6/6/97	RB	25.60	147	F	4+	1.3+	4
WWC	6/6/97	RB	23.00	86	F	2+	1.1+	4
WWC	6/6/97	RB	30.40	221	F	3+	1.2+	4
WWC	6/20/97	CT	25.20	143	M	4+	1.3+	4
N BAY 2	6/20/97	RB	18.00	54	F	3+	1.2+	4
SS4	6/20/97	RB	17.70	46	M	2+	2.0+	4
NS2	7/2/97	CT	26.80	144	F			4
NS2	7/2/97	RB	22.40	83	F	2+	1.1+	4
NS2	7/17/97	CT	28.50	189	F			4
NS2	7/17/97	CT	29.00	194	F			4
DBH	7/17/97	RB	25.90	152	F			4
NS2	8/5/97	CT	26.80	173	F			4
NS4	8/5/97	CT	27.10	174	F			4
NS4	8/5/97	CT	28.70	192	M			4
NS4/WC	8/5/97	CT	27.90	196	F			4
NS4/WC	8/5/97	HYB	30.50	238	M			4
NS4	8/5/97	TR	31.00	234	M			4
NS4	8/5/97	TR	33.00	253	M			4
NS4	8/18/97	CT	28.50	192	F			4
NS4	8/18/97	CT	29.50	188	F			4
NS4	8/18/97	CT	31.60	264	M			4
NS2	8/18/97	HYB	29.00	207	F			4
NS2	9/9/97	RB	18.00	59	F			4
NS2	9/9/97	RB	28.40	193	F			4
NS2	9/24/97	CT	26.00	140	F			4

Appendix Table 17. Plerocercoid counts in Spada Lake trout, by species, two-month time blocks, and years of reservoir residence. Numbers in columns are plerocercoid counts.

Cutthroat					Rainbow					Hybrids				
Time Block	Years of Reservoir Residence				Time Block	Years of Reservoir Residence				Time Block	Years of Reservoir Residence			
	0 - 1	1 - 2	2 - 3	3 +		0 - 1	1 - 2	2 - 3	3 +		0 - 1	1 - 2	2 - 3	3 +
	0	0	0	3		0	0	0	1		0	0	0	113
	0	0	30	24		0	0	0	3		5	0	0	
	2	0	4			0	0	6	9		1	12	0	
	2	0	5			5	0	8			22	8	0	
	3	0	6			1	0	48			2	50	1	
	12	0	1			10	0	16			11	103	12	
		0	3			12	1	29				7	30	
		0	11			19	11	59				31	4	
		0	15			15	19	10					7	
		0					3	26					70	
		0					13	41						
Apr-May		0			Apr-May		55			Apr-May				
		24					19							
		31					33							
		3					1							
		9					12							
		3					52							
		10												
		4												
		7												
		9												
		17												
		18												
n:	6	23	9	2	n:	9	17	11	3	n:	6	8	10	1
# Infected:	4	11	8	2	# Infected:	6	11	9	3	# Infected:	5	6	6	1
Prevalence:	66.7	47.8	88.9	100.0	Prevalence:	66.7	64.7	81.8	100.0	Prevalence:	83.3	75.0	60.0	100.0
Intensity:	4.8	12.3	9.4	13.5	Intensity:	6.9	19.9	22.1	4.3	Intensity:	6.8	35.2	20.7	113.0

Appendix Table 17. Continued.

Cutthroat					Rainbow					Hybrids				
Time Block	Years of Reservoir Residence				Time Block	Years of Reservoir Residence				Time Block	Years of Reservoir Residence			
	0 - 1	1 - 2	2 - 3	3 +		0 - 1	1 - 2	2 - 3	3 +		0 - 1	1 - 2	2 - 3	3 +
	0	0	6			0	0	0	0		0	0	0	
	0	0				0	0	0			24	0	0	
	0	0				0	0	0				0	0	
	0	0				0	0	0				14	4	
	0	1				0	0	3				54	5	
	0	18				0	1	20				16	11	
	0					0	1							
	0					0	1							
	22					0	2							
June - July					June - July	0	2			June - July				
						6	3							
						43	3							
						8	4							
							4							
							28							
							12							
							1							
							50							
							1							
n:	9	6	1		n:	13	19	6	1	n:	2	6	6	
# Infected:	1	2	1		# Infected:	3	14	2	0	# Infected:	1	3	3	
Prevalence:	11.1	33.3	100.0		Prevalence:	23.1	73.7	33.3	0.0	Prevalence:	50.0	50.0	50.0	
Intensity:	22.0	9.5	6.0		Intensity:	19.0	8.1	11.5	0.0	Intensity:	24.0	21.0	5.0	

Appendix Table 17. Continued.

Cutthroat					Rainbow					Hybrids				
Time Block	Years of Reservoir Residence				Time Block	Years of Reservoir Residence				Time Block	Years of Reservoir Residence			
	0 - 1	1 - 2	2 - 3	3 +		0 - 1	1 - 2	2 - 3	3 +		0 - 1	1 - 2	2 - 3	3 +
	0	0	0	0		0	2		8		0	9	36	
	0	0	0			0	1				0	9	26	
	0	0	0			0	15				0	12	9	
	0	19	0			0	28				34	21		
	0	16	0			0	2							
	11	1	4			0	5							
		1	9			0	14							
		3				0	46							
		13				0								
						0								
						0								
						0								
Aug - Sept					Aug - Sept	0				Aug - Sept				
						0								
						3								
						6								
						23								
						11								
						26								
						15								
						76								
						12								
						37								
						1								
						30								
n:	6	9	7	1	n:	25	8		1	n:	4	4	3	
# Infected:	1	6	2	0	# Infected:	11	8		0	# Infected:	1	4	3	
Prevalence:	16.7	66.7	28.6	0.0	Prevalence:	44.0	100.0		0.0	Prevalence:	25.0	100.0	100.0	
Intensity:	11.0	8.8	6.5	0.0	Intensity:	21.8	14.1		0.0	Intensity:	34.0	12.8	23.7	

Appendix Table 17. Continued.

Cutthroat					Rainbow					Hybrids				
Time Block	Years of Reservoir Residence				Time Block	Years of Reservoir Residence				Time Block	Years of Reservoir Residence			
	0 - 1	1 - 2	2 - 3	3 +		0 - 1	1 - 2	2 - 3	3 +		0 - 1	1 - 2	2 - 3	3 +
	0	0	0	3		0	0	10	4		0	14	0	71
	0	4	0	185		0	34				11	19	0	
	0	2	0			0	41				3		48	
	2	4	0			0					5		4	
	2	17	0			0							31	
	1		9			0							33	
	3		6			0							65	
Oct - Nov			11		Oct - Nov	0				Oct - Nov				
			40			0								
			136			4								
						5								
						14								
						26								
						1								
						6								
						13								
n:	7	5	10	2	n:	16	3	1	1	n:	4	2	7	1
# Infected:	3	4	5	2	# Infected:	7	2	1	1	# Infected:	3	2	5	1
Prevalence:	42.9	80.0	50.0	100.0	Prevalence:	43.8	66.7	100.0	100.0	Prevalence:	75.0	100.0	71.4	100.0
Intensity:	2.0	6.8	40.4	94.0	Intensity:	9.9	25.0	10.0	4.0	Intensity:	4.8	16.5	36.2	71.0

Appendix Table 18. Spada Lake Tributary Sampling.

Section	Date	Sp	Totage	Gear
EC1	9/12/96	RB	0+	EF
EC1	9/12/96	RB	1+	EF
EC2	9/12/96	HYB		EF
EC2	9/12/96	RB	0+	EF
EC2	9/12/96	RB	0+	EF
EC2	9/12/96	RB	1+	EF
SFS1	9/12/96	CT	0+	EF
SFS1	9/12/96	HYB	0+	EF
SFS1	9/12/96	HYB	1+	EF
SFS1	9/12/96	RB	0+	EF
WC1	9/11/96	HYB	1+	EF
WC1	9/11/96	RB	0+	EF
WC1	9/11/96	RB	0+	EF
WC1	9/11/96	RB	1+	EF
WC1	9/11/96	RB	1+	EF
WC1	9/11/96	RB	1+	EF
WC1	9/11/96	RB	1+	EF
WC1	9/11/96	RB	1+	EF
WC2	9/13/96	CT	0+	EF
WC2	9/13/96	CT	0+	EF
WC2	9/13/96	CT	1+	EF
WC2	9/13/96	CT	1+	EF
WC2	9/13/96	RB	1+	EF
WC2B	9/13/96	HYB		EF
WC2B	9/13/96	HYB	0+	EF
WC2B	9/13/96	RB	0+	EF
WC2B	9/13/96	RB	1+	EF
WC2B	9/13/96	RB	1+	EF
WC2B	9/13/96	RB	1+	EF
WC2B	9/13/96	RB	1+	EF
WC2B	9/13/96	RB	1+	EF
WC3	9/13/96	RB		EF
WC3	9/13/96	RB	0+	EF
WC3	9/13/96	RB	1+	EF

Appendix Table 19. Age and growth data from trout collected from Spada Lake, 1979-1997.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
6	14	79	L	CT	36.3		3		13	30	52			64
6	16	79	L	CT	25.7		2		19	36				48
				CT	27.1		2		17	38				50
				CT	27.3		3		15	30	42			45
				CT	27.5		2		14	40				46
				CT	30.0		3		15	40	54			62
				RB	31.5		2		35	57				62
				RB	32.0		2		22	65				72
				CT	32.3		3		9	22	39			60
				CT	32.7		3		14	29	58			66
				CT	35.8		3		19	48	70			77
				CT	36.8		3		14	29	62			84
				RB	37.9		2		35	80				95
				RB	39.9		2		35	80				90
6	21	79	L	CT	27.6		2		12	36				44
				CT	28.5		3		10	29	55			65
6	30	79	L	CT	24.2		2		15	30				39
				RB	30.5		2		30	52				69
				CT	30.5		3		14	25	34			50
				CT	34.7		3		14	38	54			62
7	4	79	L	CT	28.8		3		15	25	43			55
				HYB	49.2		4		35	73	95			112
7	12	79	L	CT	26.4		3		14	32	50			62
7	22	79	L	CT	20.8		2		15	30				34
7	24	79	L	CT	23.2		2		18	33				37
				CT	23.2		2		14	39				45
				CT	25.9		3		21	39				44
8	2	79	L	CT	35.6		3		14	38	55			56
8	8	79	L	CT	24.0		1		21					40
8	11	79	L	CT	18.7		2		14	28				30
				CT	22.6		1		19					38
8	16	79	L	CT	37.4		3		19	35	48			55
8	19	79	L	CT	29.5		3		20	51	70			72
				RB	40.3		2		40	70				95
8	24	79	L	CT	30.9		3		14	32	41			53
				RB	33.1		2		25	40				55
				CT	40.4		4		18	35	70	85		89
				RB	41.5		2		30	70				90
				RB	42.8		2		40	85				103

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
8	25	79	L	CT	22.3		2		14	38				40
				CT	22.9		2		17	30				35
				CT	26.6		3		16	33	49			54
				CT	29.1		3		13	33	45			58
				CT	32.9		3		12	32	50			66
				CT	35.6		3		15	31	48			60
				RB	35.7		3		15	37	52			79
				CT	36.3		3		13	30	48			51
				RB	40.0		2		28	65				87
				CT	40.7		3		14	28	48			65
8	27	79	L	CT	34.0		3		12	28	50			58
9	1	79	L	CT	27.8		3		11	23	39			43
				CT	29.0		3		15	35	64			65
				CT	30.5		3		15	34	45			47
				RB	32.1		2		25	45				65
				CT	32.2		3		13	35	48			55
				RB	32.4		2		20	45				61
				RB	32.4		2		20	35				60
				RB	32.8		2		25	48				68
				CT	33.2		3		16	39	54			66
				CT	36.2		3		13	34	46			59
				HYB	45.5		2		35	80				100
				HYB	46.9		4		25	45	67	80		85
9	3	79	L	HYB	50.7		4		20	45	65	90		102
				CT	23.1		2		15	29				33
				CT	24.5		2		13	40				48
				CT	25.1		1		19					45
				RB	26.3		1		25					50
				CT	26.7		3		12	31	40			42
				CT	27.3		3		10	24	36			45
				CT	27.9		2		12	30				39
				CT	30.2		3		12	24	39			56
				CT	30.8		3		11	30	46			56
				RB	31.7		2		26	46				77
				CT	33.6		3		14	30	54			56
				RB	34.2		2		40	60				75
				CT	34.2		3		11	31	50			56
				RB	37.3		2		27	70				95
				CT	41.9		4		21	36	48			77
				RB	43.9		2		33	65				90

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
12	12	79	L	RB	31.5		2		15	32				50
				CT	31.5		3		17	26	45			70
				RB	32.6		2		25	40				60
				RB	33.1		2		26	30				54
				CT	35.1		3		16	35	58			74
				CT	37.3		3		18	44	70			76
				RB	38.3		2		32	60				60
				CT	38.3		3		22	36	58			65
				CT	43.5		4		16	25	38	59		82
4	14	80	L	CT	31.9		3		14	32	46			54
4	18	80	L	CT	28.0		3		16	27	60			67
4	20	80	L	CT	36.3		3		19	52	72			80
				CT	23.2		2		12	40				45
				CT	52.5		3		14	32	69			80
				CT	35.9		3		11	28	57			60
				CT	32.8		3		18	39	48			63
				CT	22.1		2		15	33				38
				CT	44.1		3		23	50	70			91
				CT	42.0		4		14	41	68	98		102
				CT	37.0		3		19	30	48			62
				CT	37.2		3		12	34	59			74
				CT	33.7		3		15	32	51			60
				CT	40.0		4		16	30	52	66		76
				CT	44.8		4		24	37	62	71		91
				CT	43.6		4		18	36	68	82		87
				CT	37.8		3		14	30	55			68
				CT	27.6		2		14	34				47
				CT	56.7		4		24	44	75	86		92
				CT	24.5		2		11	35				37
				CT	40.2		3		14	46	74			84
				RB	36.6		4		25	40	60	90		90
				RB	42.0		3		39	74	105			110
4	23	80	L	CT	29.4		2		18	30				55
4	26	80	L	CT	33.1		3		11	35	65			72
5	1	80	L	CT	39.2		4		16	32	60	85		91
				CT	36.2		3		12	35	59			78
5	6	80	L	CT	29.5		3		17	28	45			60
5	10	80	L	CT	31.8		3		9	35	50			58
5	13	80	L	RB	20.8		1		39					44
				RB	19.4		1		40					43

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
5	18	80	L	CT	32.1		3		17	37	58			69
				CT	32.6		3		12	29	40			51
				CT	38.2		4		15	29	60	84		88
				CT	33.6		3		10	30	51			60
				CT	35.0		3		16	25	52			70
				CT	26.7		2		16	38				58
				RB	42.5		3		30	60	78			82
				RB	24.2		1		30					50
5	19	80	L	RB	18.5		1		34					50
5	26	80	L	CT	39.4		3		16	35	68			72
				RB	23.5		1		28					52
5	29	80	L	CT	27.4		2		13	35				50
6	1	80	L	CT	25.3		2		13	32				45
				CT	30.5		2		14	44				59
				CT	34.8		3		18	42	55			65
				CT	26.3		2		15	40				45
6	5	80	L	RB	18.9		1		35					42
6	8	80	L	CT	25.9		3		15	30	51			68
				CT	41.0		4		11	27	58	79		84
6	10	80	L	RB	22.2		1		40					50
6	14	80	L	RB	21.0		1		36					48
				RB	20.6		1		36					45
6	19	80	L	CT	30.6		2		16	36				51
6	20	80	L	CT	25.4		2		14	39				45
				CT	28.5		3		15	25	49			58
6	24	80	L	CT	24.2		2		14	39				46
				CT	35.3		3		14	48	70			86
6	28	80	L	CT	23.1		2		14	36				55
				CT	28.4		3		14	30	54			59
				CT	38.6		3		13	34	64			76
				CT	27.1		3		14	38	50			61
				CT	21.3		2		12	35				46
7	4	80	L	CT	22.6		2		13	32				43
				CT	54.1		4		17	50	72	96		107
7	6	80	L	CT	18.9		2		10	32				35
				CT	39.0		3		19	36	76			90
				CT	34.1		3		12	32	46			55

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
7	12	80	L	CT	40.7		3		21	39	70			78
				CT	37.7		3		19	38	59			75
				CT	35.6		4		12	30	53	65		77
				RB	23.4		1		32					47
7	26	80	L	CT	17.2		1		14					31
				CT	17.1		2		15	39				42
4	24	86	L	CT	35.7	350	5	2	9	18	33	43	48	48
				CT	35.7	386	4	2	14	22	42	53		53
4	26	86	L	CT	34.7	422	3	1	14	30	48			48
				CT	38.9	474	4	1	11	33	50	54		54
				CT	41.0	528	3+	1	12	29	42			47
5	3	86	L	CT	33.6	256	4	2	9	13	29	35		35
				HYB	29.4	240	2	1	17	36				36
				HYB	31.0	296	2+	1	12	48				51
				HYB	33.6	362	3	1	12	40	53			53
				HYB	33.6	376	3	1	10	32	44			44
5	4	86	L	CT	35.2	430	4	1	12	22	33	38		38
				CT	42.5	772	4	1	14	30	43	61		61
				HYB	32.6	314	3+	1	9	25	44			46
				HYB	33.6	344	4	2	8	13	33	39		39
5	9	86	L	CT	34.1	450	3+	2	12	21	38			45
				RB	36.8	484	4	1	10	28	45	56		56
5	11	86	L	CT	37.8	490	4	1	11	25	39	47		47
				HYB	32.6	342	3+	1	10	34	51			54
				RB	27.3	174	3+	1	9	27	36			41
5	23	86	L	CT	34.7	370	4+	1	8	22	33	39		41
				CT	41.0	634	4	1	10	28	39	46		46
				HYB	32.6	298	2+	1	12	39				46
				HYB	33.6	350	2+	1	18	42				48
				RB	28.9	208	3	1	12	37	52			52
				RB	30.5	250	3	1	12	37	55			55
				RB	32.6	350	3+	1	10	40	58			63
				RB	32.6	314	3	1	11	31	52			52
				RB	36.8	422	4	2	8	20	49	60		60
				RB	38.9	612	4+	1	15	39	60	70		75
5	31	86	L	CT	-1.1	-1	4	1	10	27	43	56		56
				CT	28.1	345	3+	1	8	25	35		68	37
				CT	30.5	250	3+	1	8	21	32			41
				CT	43.1	704	4	1	9	26	35	46		46
				CT	45.2	702	5	1	12	38	51	60		68
				RB	33.1	338	3	1	14	33	46			46

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
6	7	86	L	CT	28.9	212	3+	1	12	29	37			40
				CT	32.0	304	3+	2	9	17	38			45
				RB	28.9	230	2+	1	18	34				37
				RB	37.7	448	3+	1	18	41	61			70
6	14	86	L	CT	35.5	334	3+	1	12	31	42			50
6	15	86	L	CT	32.9	290	2+	1	11	25				30
				HYB	23.6	130	2+	1	10	34				41
				RB	21.4	94	2+	1	10	22				33
				RB	26.9	208	2+	1	15	34				36
				RB	29.3	246	2+	1	15	50				60
6	21	86	L	CT	34.1	368	4	1	9	26	40	49		49
				RB	22.1	104	2+	2	14	25				38
				RB	33.2	356	3	1	11	34	48			48
				RB	33.4	310	3	1	16	48	75			75
6	25	86	L	HYB	36.2	360	3+	2	11	23	50			56
6	27	86	L	CT	30.1	258	2+	1	15	39				45
				HYB	32.6	350	2+	1	10	37				40
				RB	34.1	348	3	1	16	49	59			59
7	4	86	L	RB	29.4	242	3+	2	14	21	40			49
				RB	32.2	318	3+	1	15	35	43			45
				RB	34.8	378	3+	2	9	20	45			59
7	5	86	L	RB	32.3	304	2+	1	14	29				38
7	11	86	L	CT	36.9	480	4+	2	11	23	50	59		65
				RB	35.0	362	3+	1	13	39	54			57
7	12	86	L	HYB	27.5	186	2+	1	9	26				38
7	19	86	L	CT	37.3	454	4+	1	8	22	28	33		41
				RB	21.2	106	2+	1	7	20				31
7	20	86	L	RB	24.3	148	2+	1	9	27				42
7	26	86	L	RB	28.0	200	2+	1	17	38				42
8	2	86	L	CT	34.3	332	3+	1	8	29	35			38
				CT	37.8	458	4+	1	9	26	35	42		45
				RB	27.3	202	3+	1	11	31	52			57
8	16	86	L	CT	35.2	396	3+	1	15	27	31			35
				CT	35.5	338	3+	1	15	32	41			47
				RB	36.2	508	4+	1	15	21	43	52		58

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
4	26	92	L	RB	30.9		3		9	29	45			55
				RB	31.7		2		45	73				73
				RB	31.7		4		14	32	56	60		68
				RB	36.1		3		35	60	90	70		90
				RB	36.1		4		12	26	50			78
				RB	34.7		3		33	45	75	70		75
				RB	34.7		4		10	29	40			75
				CT	30.9		2		22	45				52
				CT	30.2		3		17	35	48			51
				CT	29.0		3		14	35	50			54
				RB	29.9		3		23	51	72			72
				RB	30.7		3		20	40	72			72
				CT	30.2		3		14	25	40			49
				CT	30.6		3		10	27	36			45
				CT	37.6		3		20	40	55			55
				CT	37.6		3		10	29	50			52
				RB	31.3		3		22	34	60			65
				CT	30.7		3		13	30	41			54
				CT	31.0		3		10	27	39	64		55
				RB	32.9		4		20	40	50			64
				RB	33.1		3		11	30	41			52
				RB	26.3		3		20	45	67			67
				RB	27.6		3		19	44	71			71
				CT	28.7		2		26	40				44
				CT	29.4		2		18	43				55
				CT	30.2		3		14	28	54			66
				CT	29.4		3		16	35	60			63
				CT	27.0		2		13	40				58
				CT	28.1		2		26	52				59
				CT	31.2		3		14	32	57			64
				CT	32.6		3		27	45	55			60
				CT	29.9		2		24	48				54
				CT	31.5		3		26	53	63			66
				RB	32.3		3		15	32	62			74
				CT	30.1		3		12	35	60			65
				CT	30.7		3		19	36	54			56
				CT	37.0		3		25	50	72			77
				CT	37.0		3		15	29	44			65
				CT	34.3		3		24	37	50			53
				CT	30.6		3		15	24	41			59
				CT	31.1		3		14	28	48			58
				CT	30.0		3		18	37	47			56
				CT	40.7		3		25	55	70			77
				RB	29.6		3		15	36	50			53
				RB	30.5		3		12	35	65			75

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
4	26	92	L	HYB	28.4		3		13	35	50			52
				CT	28.8		3		24	40	70			76
				CT	33.5		2		37	55				60
				CT	32.0		3		15	25	36			46
				CT	30.5		3		15	29	45			50
				CT	29.6		3		20	42	50			53
				CT	38.7		3		20	40	55			61
				CT	38.7		3		10	29	51			60
				RB	29.6		3		11	32	55			60
				RB	34.7		3		25	60	80			83
				RB	34.7		3		19	35	52			75
				RB	33.8		2		23	55				57
				RB	33.8		3		14	34	55			58
				CT	38.9		3		18	30	55			58
				HYB	34.7		3		20	40	58			64
				CT	32.8		2		18	40				50
5	2	92	L	HYB	38.3		3		25	58	80			80
5	3	92	L	RB	35.0		3		17	42	67			75
				HYB	35.6		3		18	40	65			72
				HYB	30.5		3		18	35	48			50
				CT	29.1		2		11	25				41
				RB	29.4		3		11	44	65			69
				CT	33.8		3		21	40	55			57
5	4	92	L	CT	38.9		4		13	30	43	55		58
				RB	29.5		3		10	32	62			68
				HYB	30.0		2		30	60				63
				CT	24.4		2		16	40				50
5	9	92	L	CT	30.7		3		9	24	40			47
				RB	29.0		2		10	35				49
				CT	31.6		3		14	30	41			47
5	10	92	L	CT	31.0		3		12	26	35			48
5	16	92	L	RB	31.0		3		22	40	80			90
				RB	39.2		4		18	22	43	60		66

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
5	17	92	L	HYB	33.6		3		17	28	40			42
				RB	31.9		2		30	73				87
				CT	35.5		3		16	40	45			45
				CT	41.2		2		32	55				65
				CT	32.3		3		12	25	45			51
				HYB	43.8		3		22	60	77			95
				HYB	31.0		3		16	35	75			82
				CT	33.6		3		14	25	45			47
				CT	39.9		3		16	40	60			63
				CT	32.8		4		14	25	35	53		55
				RB	29.0		2		30	60				66
				RB	34.7		2		40	75				85
				RB	27.6		3		20	45	54			55
				CT	29.7		3		14	25	43			45
5	23	92	L	CT	33.0		3		25	48	70			72
				RB	30.8		2		52	87				92
				CT	45.0		4		35	57	75	93		100
				CT	45.0		4		11	28	50	75		81
				RB	39.7		3		32	65	105			107
				CT	36.5		3		27	45	63			66
5	24	92	L	CT	32.7		2		35	69				75
				RB	35.0		2		36	72	45			89
				CT	35.2		3		16	36				45
				CT	31.4		2		17	50				65
5	25	92	L	CT	28.6		3		12	28	40			42
				CT	31.5		3		22	38	58			63
				CT	32.1		3		25	40	55			60
				RB	30.6		3		27	53	80			85
				CT	29.8		3		14	34	65			69
				RB	30.3		2		27	65				74
				RB	36.8		4		18	35	53	70		73
				RB	30.7		2		31	58				62
				RB	34.7		3		20	50	75			77
				RB	31.5		3		15	36	50			52
				CT	31.5		2		32	55				57
				HYB	31.1		3		11	31	55			58
				HYB	32.6		2		15	36				47
				RB	34.7		3		15	35	60			74
				RB	26.9		2		20	42				47
				RB	31.3		3		10	28	55			69
				RB	32.1		3		11	30	54			59
				RB	30.3		4		12	31	62	77		81
				RB	31.5		3		9	21	46			61
				RB	32.4		2		45	70				75

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
5	31	92	L	HYB	32.3		2		27	60				70
				CT	34.7		3		17	38	50			57
				CT	32.3		2		14	47				56
				RB	31.1		2		20	55				65
				HYB	34.9		2		18	50				60
				RB	31.3		2		28	62				69
				RB	33.4		3		22	50	72			84
				HYB	33.8		3		22	48	65			70
6	2	92	L	RB	36.5		3		45	65	75			82
				CT	33.2		2		28	50				60
6	6	92	L	HYB	36.0		4		12	22	50			71
				RB	33.5		2		40	75				82
				CT	31.1		3		10	29	45			47
				CT	31.0		3		15	38	50			55
6	7	92	L	CT	35.7		4		15	36	55	63		65
				CT	32.8		3		12	30	47			59
				CT	29.8		2		20	65				77
				RB	29.0		2		45	75				82
6	13	92	L	CT	33.2		3		15	33	45			52
				HYB	35.7		3		15	39	52			58
6	20	92	L	RB	31.7		3		9	26	42			72
6	21	92	L	RB	30.3		3		11	28	42			50
				RB	36.5		4		15	27	45	63		71
				CT	33.2		2		15	31				48
				HYB	29.3		3		13	32	47			60
				HYB	31.0		3		12	25	51			70
				RB	29.6		3		12	25	50			71
				RB	31.1		3		12	30	61			74
6	28	92	L	HYB	31.9		3		14	31	42			60
				RB	35.3		4		9	24	50	78		87
7	3	92	L	HYB	32.7		3		40	55	73			75
				HYB	32.7		3		10	25	58			68
7	11	92	L	HYB	34.4		3		35	56	72			78
				CT	40.3		3		15	29	49			61
				HYB	36.8		3		27	55	70			75
				HYB	36.8		3		9	25	52			60
7	12	92	L	CT	31.4		3		13	32	47			50
				HYB	31.3		3		12	30	51			62
7	15	92	L	RB	30.6		3		10	31	50			61
				HYB	28.4		2		12	30				49
7	18	92	L	CT	35.3		3		14	39	52			59

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
7	26	92	L	CT	30.2		3		12	25	46			50
				HYB	29.4		3		12	24	54			75
				CT	30.3		2		18	37				49
				HYB	31.4		3		16	32	44			56
				HYB	35.8		2		20	50				52
				HYB	35.8		3		10	24	40			45
8	5	92	L	RB	29.5		3		10	27	38			56
8	30	92	L	HYB	33.2		2		17	49				62
				CT	33.8		3		17	35	48			55
9	5	92	L	CT	36.8		2		10	30				43
				HYB	31.1		3		14	45	62			67
				HYB	32.2		2		19	46				62
9	7	92	L	HYB	35.5		3		15	30	58			72
				CT	35.4		3		22	41	55			70
9	13	92	L	RB	33.2		3		14	40	52			60
				HYB	35.0		2		25	42				48
				HYB	33.4		3		14	35	65			80
5	7	95	L	HYB	31.1		4+	2	15	33	58	68		72
				CT	32.6		3	1	16	35	50			50
				CT	34.1	285	3+	1	18	39	52			58
5	13	95	L	RB	26.0	200	3+	1	14	45	67			73
				CT	30.5	245	3+	1	18	42	55			59
				HYB	31.0	295	3+	1	13	30	45			54
5	20	95	L		29.2		2+	1	18	44				51
				HYB	30.5									
				HYB	32.0		4+	2	10	26	47	65		78
5	21	95	L	HYB	31.7		3+	1	8	36	51			58
5	27	95	L	CT	31.2	245	4+	1	21	40	57	67		68
				CT	32.6	265	4	2	10	19	40	51		51
				HYB	33.0	315	4	1	18	45	55	64		64
6	24	95	L	HYB	27.5	155	2+	1	14	37				47
				HYB	29.1	183	3+	2	11	21	45			54
					31.5	222	3+	1	17	29	39			43
				CT	31.5	205	4+	2	10	19	40	50		55
6	25	95	L	HYB	29.1	217	2+	1	19	48				58
				HYB	30.5	223	2+	1	17	42				56
				RB	31.5	220	4	1	14	47	75	91		91
				HYB	32.5	261	4+	1	16	45	60	72		79
				HYB	33.3	322	3+	1	22	49	70			80
7	4	95	L	RB	29.5	340	3+	1	14	45	59			65

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
7	8	95	L	HYB	32.1	258	3+	1	19	54	67			74
7	15	95	L		27.5	330	3+	1	18	48	64			68
				RB	28.0	310	3+	1	13	38	50			54
				RB	28.4	320	2+	1	14	45				52
					32.0	400	3+	1	11	35	68			80
				HYB	32.5	430	3+	1	13	38	49			53
7	23	95	L	CT	29.0	200	2+	1	13	34				44
7	9	96	T	HYB	25.0	125	3+	2	7	18	30			35
				RB	14.5	24	1+	1	12					22
				RB	17.5	49	1+	1	20					26
7	18	96	L	CT	22.6	91	2+	1	13	30				37
				CT	25.7	134	3+	1	11	27	33			37
				CT	27.1	151	2+	1	20	36				40
				CT	32.6	291	3+	1	13	29	43			48
				HYB	17.0	42	2+	2	11	21				25
				HYB	29.1	210	3+	1	13	34	53			60
				HYB	30.5	220	3+	1	12	30	55			68
				RB	20.7	80	2+	1	10	30				37
				RB	23.7	97	3+	1	10	27	42			46
				RB	25.0	120	3+	1	10	31	52			55
				RB	25.5	125	2+	1	17	47				58
				RB	26.5	160	3+	2	15	26	42			51
7	19	96	L	RB	18.5	57								
				CT	27.4	150	2+	1	7	29				34
				CT	27.4	170	3+	1	7	21	33			35
				HYB	28.6	182	3+	1	15	27	32			36
				RB	23.0	94	2+	1	15	38				46
				RB	27.0	150	2+	1	17	40				46
9	11	96	T	HYB	12.6	N/A	1+	2	11					19
				RB	9.6	N/A	0+	1						13
				RB	10.6	N/A	0+	1						14
				RB	11.6	N/A	1+	2	15					22
				RB	12.2	N/A	1+	2	12					18
				RB	13.4	N/A	1+	2	13					18
				RB	13.4	N/A	1+	2	15					21
				RB	13.8	N/A	1+	2	11					18

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
9	12	96	T	HYB	19.0	59								
				CT	10.8	8	0+	1						12
				CT	35.8	N/A	4+	1	13	31	39	48		54
				HYB	10.1	8	0+	1						14
				HYB	11.6	12	1+	1	12					18
				RB	8.6	5	0+	1						12
				RB	9.6	7	0+	1						12
				RB	10.0	8.5	0+	1						16
				RB	10.5	10	0+	1						15
				RB	15.6	33.6	1+	2	15					24
				RB	16.6	40	1+	2	12					18
9	13	96	T	BR	12.6	19								
				HYB	12.9	22								
				CT	10.3	11	0+	1						13
				CT	10.4	10.5	0+	1						14
				CT	14.0	29	1+	2	13					16
				CT	18.3	53	1+	2	14					22
				HYB	10.1	9.5	0+	1						15
				RB	9.4	7	1+	2	11					20
				RB	10.2	12.5	0+	1						16
				RB	10.5	10	1+	2	13					20
				RB	11.1	13.5	0+	1						13
				RB	11.9	13.5	1+	2	13					20
				RB	12.1	17	1+	2	13					25
				RB	12.5	19	1+	2	8					17
				RB	14.8	35	1+	2	15					21
				RB	16.1	43	1+	2	15					21
10	4	96	L	CT	23.3	90	2+	1	9	20				28
				CT	26.7	140	2+	1	9	21				38
				CT	28.6	171	2+	1	10	24				34
				CT	29.0	190	2+	1	12	29				33
				CT	29.4	181	2+	1	11	35				46
				HYB	20.8	78	2+	1	12	31				42
				HYB	26.9	150	2+	1	11	30				40
				RB	23.9	111	2+	1	8	34				53
				RB	26.2	142	2+	1	16	40				50
5	9	97	L	CT	20.3	68	2	1	13	28				28
				HYB	27.6	199	3	1	12	34	43			43
				RB	17.8	47	1+	1	11		36			28
				RB	19.6	56	2	1	12	32				32
				RB	22.6	88	3	1	11	28				36

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
5	23	97	L	CT	26.0	145	3	1	15	25	35			35
				CT	26.3	155	3	1	8	28	35	57		35
				CT	32.3	271	4	1	11	34	47			57
				HYB	18.7	56	1+	1	10					25
				HYB	25.1	133	3	1	11	28	37			37
				HYB	26.6	147	3	1	10	28	34			34
				RB	15.1	31	2	1	8	24				24
				RB	18.8	55	2+	1	12	28				30
				RB	18.8	59	2+	1	20	32				35
				RB	19.1	57	2+	1	16	35				38
				RB	20.0	65	2+	1	13	32				35
				RB	26.8	159	3	1	11	32	46			46
				RB	28.0	187	3+	1	12	30	49			55
				RB	30.4	240	3+	1	13	35	47			50
6	6	97	L	HYB	28.0	164								
				CT	20.2	65	2+	1	7	22				26
				CT	22.1	86	2+	1	9	21				22
				CT	23.3	95	2+	1	15	27				31
				HYB	20.3	70	2+	1	11	29				31
				HYB	25.4	13.6	3+	1	16	36	41			46
				HYB	28.1	185	3+	1	9	32	42			48
				RB	12.6	17	1+	1	12					16
				RB	13.8	21	1+	1	10					13
				RB	18.1	58	1+	1	14					29
				RB	18.5	58	2+	1	8	22				27
				RB	19.7	67	2+	1	17	35				37
				RB	20.0	70	2+	1	8	25				28
				RB	20.2	71	2+	1	10	24				26
				RB	20.3	74	2+	1	9	28				32
				RB	23.9	118	2+	1	9	30				32
				RB	25.6	147	3+	1	10	26	38			42
				RB	19.9	61	2	1	14	31				31
6	20	97	L	CT	25.9	146	3	1	11	27	37			37
				HYB	27.7	163	3+	1	10	27	37			42
				RB	17.7	46	1+	1	14					27
				RB	18.0	54	2+	1	12	26				28

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
7	2	97	L	CT	12.5	18	1+	1	9					17
				CT	14.2	24	1+	1	8					16
				CT	14.8	22	1+	1	11					17
				CT	15.0	28	1+	1	11					17
				CT	15.1	27	1+	1	12					20
				CT	23.9	104	2+	1	13	24				29
				CT	27.0	152	2+	1	10	33				40
				HYB	18.2	57	2+	1	10	25				34
				HYB	20.8	79	2+	1	9	21				26
				HYB	22.7	95	2+	1	13	27				36
				RB	13.0	19	1+	1	11					18
				RB	13.5	23	1+	1	14					27
				RB	21.2	80	2+	1	13	34				40
				RB	22.4	83	2+	1	14	27				36
7	17	97	L	RB	12.6	20	1+	1	16					31
				CT	12.8	20	1+	1	11					23
				RB	12.8	22	1+	1	12					26
				RB	14.3	30	2+	2	12	20				23
				RB	14.5	28	1+	1	15					34
				HYB	17.6	54	2+	2	11	23				34
				CT	17.8	51	2+	2	9	17				27
				RB	18.3	58	2+	2	11	25				33
				CT	19.3	68	2+	2	14	22				31
				RB	19.3	67	2+	2	9	28				42
				HYB	19.5	66	2+	2	10	27				40
				HYB	25.5	128	3+	1	14	31	50			61
				CT	27.1	164	3+	2	12	29	45			56
				RB	28.0	200	2+	1	20	47				58
				CT	29.0	194	3+	1	10	27	39			50
8	5	97	L	RB	11.7	17	1+	1	12					27
				RB	13.6	24	1+	1	12					31
				RB	16.0	40	1+	1	12					28
				CT	16.7	46	2+	1	13	23				32
				RB	17.8	54	1+	1	15					41
				CT	17.8	49	1+	1	12					27
				RB	19.4	62	2+	2	12	36				51
				RB	24.3	143	2+	1	14	45				62
				CT	26.2	151	2+	1	20	41				54
				CT	26.8	173	3+	1	17	31	42			51
				CT	27.1	174	2+	1	16	35				55
				CT	27.9	196	3+	1	15	35	47			54
				CT	28.7	192	3+	1	11	28	39			50
				HYB	30.5	238	3+	1	22	47	55			61

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
8	18	97	L	HYB	12.0	18	1+	1	15					25
				HYB	12.3	19	1+	1	19					30
				RB	12.8	20	1+	1	12					28
				CT	12.8	19	1+	1	11					17
				RB	12.9	22	1+	1	12					32
				CT	13.5	21	1+	1	14					26
				CT	15.2	30	1+	1	11					25
				RB	17.3	51	2+	2	15	24				33
					18.0	61	1+	1	15					42
				RB	19.5	79	2+	2	10	21				48
				CT	28.5	192	2+	1	19	38				48
				HYB	29.0	207	3+	1	14	40	60			70
				CT	29.5	188	3+	1	20	39	53			61
				CT	31.6	264	4+	1	15	30	45	58		65
9	9	97	L	RB	11.4	12	1+	1	12					26
				RB	12.5	20	1+	1	18					32
				RB	12.9	23	1+	1	11					26
				RB	13.8	25	1+	1	11					33
				RB	13.8	25	1+	1	12					31
				HYB	14.8	30	1+	1	10					22
				RB	18.0	59	2+	2	10	25				42
				RB	18.8	64	1+	1	17					51
				RB	20.8	79	2+	1	18	37				47
				RB	23.5	118	2+	2	15	30				59
				RB	23.8	127	2+	1	17	48				71
				HYB	26.0	143	3+	1	23	40	55			71
				RB	26.6	156	4+	1	14	25	34	51		66
				RB	26.9	158	2+	1	14	40				59
9	24	97	L	RB	11.6	14	1+	1	12					27
				RB	12.9	18	1+	1	6					28
				RB	13.0	21	1+	1	12					29
				HYB	13.8	25	1+	1	12					30
				RB	15.1	32	1+	1	12					30
				RB	16.5	32	1+	1	17					38
				CT	19.0	62	1+	1	10					36
				RB	23.8	116	2+	1	11	29				45
				RB	24.4	134	2+	1	15	31				55
				HYB	26.2	155	2+	1	13	30				46
				CT	26.3	134	3+	1	9	29	42			55
				HYB	27.4	181	2+	1	19	46				62
				CT	29.7	200	2+	1	17	37				47
				CT	30.1	177	3+	1	18	37	47			53
				CT	33.1	293	3+	2	18	28	63			79

Appendix Table 19. Continued.

MM	DD	YY	Trib. or Lake	Species	Total Length (cm)	Weight (grams)	Age	Years in Streams	Distance from focus to annulus 0-1	0-2	0-3	0-4	0-5	Total Radius
10	10	97	L	RB	13.0	20	1+	1	13					29
				RB	13.6	22	1+	1	14					28
				RB	14.5	28	1+	1	12					28
				RB	14.8	30	1+	1	13					34
				CT	16.8	43	1+	1	9					26
				RB	17.5	54	1+	1	14					38
				RB	17.5	50	1+	1	15					39
				RB	17.8	50	1+	1	20					39
				RB	17.9	54	1+	1	12					32
				RB	18.3	54	1+	1	13					43
				RB	19.1	62	1+	1	16					32
				RB	19.5	65	1+	1	18					48
				RB	19.5	65	2+	2	12	20				43
				RB	20.2	81	1+	1	15					40
				RB	22.0	96	3+	3	14	26	32			41
				RB	22.1	105	2+	1	12	30				49
				CT	22.2	96	1+	1	18					40
				RB	22.3	97	2+	2	15	28				51
				CT	22.6	102	2+	2	13	29				49
				HYB	23.1	116	2+	2	10	32				52
				RB	24.5	124	2+	1	18	37				45
				CT	25.1	143	2+	1	18	50				61
				HYB	25.3	141	2+	2	16	28				53
				CT	28.3	189	3+	1	14	44	52			60
				HYB	28.7	219	2+	1	20	56				72
				HYB	29.0	211	4+	1	19	40	50	56		61
				RB	29.1	210	3+	1	18	48	57			63
				HYB	29.3	210	3+	1	19	42	62			73
				RB	30.1	230	4+	1	19	35	49	58		77
				CT	30.6	233	3+	1	14	38	47			54