

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Spring Creek (Trib. of Cheyenne), Pennington County
02-0061-00
2000

Table 1. Population and Biomass Estimates for Spring Creek (Trib. of Cheyenne)

Site Number: 1717	Date Sampled: 09/19/2000	Conductivity (umhos/cm): 280
Site Midpoint (Latitude, Longitude): 43.98161836, -103.34838306	Site Length (m): 100	pH: 8.9
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 5.7	Water Temperature (C): 17.0
Stream Classification: BR1, RB2	Number of Pass: 3	Voltage:

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brown Trout	<200mm	109	116	125	109	2035	27	1160	824	23.89	1866	106.2	13.1
Brown Trout	>=200mm	35	35	35	35	614	97	350	249	86.39	563	256.6	157.6
Brown Trout	All	144	148	154	144	2596	125	1480	1052	111.86	2381	142.8	48.3
Creek Chub	All	7	7	9	7	123	3	70	50	2.52	113	123.7	23.0
Green Sunfish	All	13	18	35	13	316	6	180	128	5.40	290	101.5	19.2
Longnose Dace	All	14	16	23	14	281	3	160	114	2.40	257	97.3	9.6
Rainbow Trout	<200mm	4	4	5	4	70	1	40	28	0.58	64	96.5	9.3
Rainbow Trout	>=200mm	3	3	3	3	53	7	30	21	6.23	48	242.7	132.7
Rainbow Trout	All	8	8	9	8	140	8	80	57	6.91	129	159.1	55.1
Rock Bass	All	23	22	28	23	386	15	220	156	13.31	354	118.7	38.6
Tadpole Madtom	All	2	1	2	2	18	0	10	7	0.44	16	141.5	28.0
White Sucker	All	18	20	26	18	351	20	200	142	18.14	322	128.8	57.9

Site Number: 1840	Date Sampled: 09/18/2000	Conductivity (umhos/cm): 280
Site Midpoint (Latitude, Longitude): 43.99009910, -103.40772820	Site Length (m): 100	pH:
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 8.3	

Stream Classification: BK0, BR2

Number of Pass: 3

Water Temperature (C): 18.0

Voltage:

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brook Trout	<200mm	1	1	2	1	12	0	10	5	0.01	16	56.0	1.0
Brook Trout	All	1	1	2	1	12	0	10	5	0.01	16	56.0	1.0
Brown Trout	<200mm	203	226	244	208	2732	22	2260	1106	19.68	3636	93.2	8.1
Brown Trout	>=200mm	21	21	21	21	254	35	210	103	31.45	338	243.1	138.8
Brown Trout	All	224	243	258	228	2937	60	2430	1190	53.30	3910	107.3	20.3
Longnose Dace	All	33	32	46	33	387	1	320	157	0.48	515	52.0	1.4
Rock Bass	All	32	45	72	32	544	7	450	220	5.95	724	55.8	12.3
White Sucker	All	35	34	43	35	411	2	340	166	2.03	547	65.2	5.5

Site Number: 1864

Date Sampled: 09/26/2000

Conductivity (umhos/cm): 150

Site Midpoint (Latitude, Longitude): 43.98424529, -103.42856922

Site Length (m): 100

pH:

Survey Completed by: SD School of Mines and Technology

Mean Width (m): 8.8

Water Temperature (C): 13.0

Stream Classification: BR1

Number of Pass: 3

Voltage: 450

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brown Trout	<200mm	463	463	463	463	5267	49	4630	2133	43.44	7450	94.2	9.2
Brown Trout	>=200mm	43	43	43	43	489	81	430	198	72.28	692	251.4	165.5
Brown Trout	All	812	898	932	864	10215	230	8980	4137	205.78	14449	107.6	22.6
Longnose Dace	All	5	5	6	5	57	0	50	23	0.05	80	49.3	1.0
Rock Bass	All	15	19	31	15	216	8	190	88	7.28	306	125.6	37.8
White Sucker	All	67	92	126	67	1047	15	920	424	13.58	1480	97.4	14.5

Site Number: 1885
Site Midpoint (Latitude, Longitude): 43.98085728, -103.44241913
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR1

Date Sampled: 09/19/2000 **Conductivity (umhos/cm):** 235
Site Length (m): 100 **pH:** 8.6
Mean Width (m): 10.4 **Water Temperature (C):** 14.5
Number of Pass: 3 **Voltage:**

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brown Trout	<200mm	88	92	98	88	882	14	920	357	12.67	1480	112.5	16.1
Brown Trout	>=200mm	41	41	43	41	393	123	410	159	110.07	660	309.0	313.8
Brown Trout	All	130	135	141	130	1294	143	1350	524	127.86	2172	175.0	110.7
Golden Shiner	All	1	1	2	1	10	0	10	4	0.33	16	158.0	39.0
Hatchery Rainbow Trout	>=200mm	3	3	5	3	29	27	30	12	24.06	48	437.0	937.3
Hatchery Rainbow Trout	All	3	3	5	3	29	27	30	12	24.06	48	437.0	937.3
Longnose Dace	All	1	1	1	1	10	0	10	4	0.10	16	109.0	12.0
Northern Pike	All	2	2	6	2	19	1	20	8	0.66	32	190.5	38.5
Rock Bass	All	39	95	257	39	910	83	950	369	74.50	1529	88.1	91.7
White Sucker	All	45	62	91	45	594	84	620	241	74.56	998	152.4	140.6

Site Number: 1900
Site Midpoint (Latitude, Longitude): 43.97545209, -103.44554934
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK3, BR1

Date Sampled: 09/21/2000 **Conductivity (umhos/cm):** 260
Site Length (m): 31 **pH:** 8.4
Mean Width (m): 3.0 **Water Temperature (C):** 10.5
Number of Pass: 3 **Voltage:**

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Black Crappie	All	6	6	8	6	203	25	194	82	22.68	311	202.5	125.3

Brook Trout	>=200mm	1	1	1	1	34	9	32	14	7.66	52	297.0	254.0
Brook Trout	All	1	1	1	1	34	9	32	14	7.66	52	297.0	254.0
Brown Trout	<200mm	22	22	23	22	743	9	710	301	8.11	1142	106.5	12.2
Brown Trout	>=200mm	30	30	30	30	1014	349	968	410	311.51	1557	324.1	344.2
Brown Trout	All	52	52	52	52	1757	358	1677	711	319.62	2699	232.0	203.8
Green Sunfish	All	1	1	2	1	34	0	32	14	0.27	52	79.0	9.0
Largemouth Bass	All	12	12	14	12	405	25	387	164	22.05	623	121.3	60.9
Northern Pike	All	2	2	2	2	68	51	65	27	45.40	104	520.0	752.5
Rock Bass	All	12	12	12	12	405	45	387	164	40.12	623	173.8	110.8
White Sucker	All	7	7	8	7	236	118	226	96	105.00	363	370.6	497.3

Stream sites are classified based on the estimates of adult trout over eight inches that exist within the site. Estimates are derived from 3-pass backpack electrofishing surveys at 100-meter sites within streams. While all fish in the site are collected and measured, only trout species are used for classifications. Sites are numbered in accordance for the distance (m) from the stream confluence of a higher order stream/river.

Based on number of trout in excess of eight inches	
Class BR1	Number of wild Brown Trout exceeds 150 per acre
Class BR2	Number of wild Brook Trout ranges from 25 to 150 per acre
Class BR3	Number of wild Brown Trout is less than 25 per acre
Class BK1	Number of wild Brook Trout exceeds 150 per acre
Class BK2	Number of wild Brook Trout ranges from 25 to 150 per acre
Class BK3	Number of wild Brook Trout is less than 25 per acre
Class RB1	Number of wild Rainbow Trout exceeds 25 per acre
Class RB2	Number of wild Rainbow Trout is less than 25 per acre

Table 2. Species composition and population estimates on Spring Creek (Trib. of Cheyenne), 1990-2000

Site 1717

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Sep 28, 1998	103	80-131	
	Sep 19, 2000	116	109-125	
Brown Trout >=200mm	Sep 28, 1998	36	35-40	BR1
	Sep 19, 2000	35	35-35	BR1
Creek Chub	Sep 19, 1994	842	843-892	
	Sep 28, 1998	47	44-53	
	Sep 19, 2000	7	7-9	

Green Sunfish	Sep 28, 1998	27	12-102	
	Sep 19, 2000	18	13-35	
Longnose Dace	Sep 19, 1994	64	28-180	
	Sep 28, 1998	16	12-30	
	Sep 19, 2000	16	14-23	
Rainbow Trout <200mm	Sep 19, 2000	4	4-5	
Rainbow Trout >=200mm	Sep 19, 2000	3	3-3	RB2
Rock Bass	Sep 19, 1994	207	136-279	
	Sep 28, 1998	11	11-13	
	Sep 19, 2000	22	23-28	
Tadpole Madtom	Sep 19, 2000	1	2-2	
White Sucker	Sep 19, 1994	2	2-2	
	Sep 28, 1998	7	7-8	
	Sep 19, 2000	20	18-26	

Site 1840

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Black Crappie	Oct 03, 1997	1	1-3	
Brook Trout <200mm	Sep 18, 2000	1	1-2	
Brown Trout <200mm	Sep 13, 1996	35	28-50	
	Oct 03, 1997	65	46-96	
	Sep 01, 1998	69	63-78	
	Sep 18, 2000	226	208-244	
Brown Trout >=200mm	Sep 13, 1996	20	20-20	BR2
	Oct 03, 1997	25	22-33	BR2
	Sep 01, 1998	19	18-23	BR2
	Sep 18, 2000	21	21-21	BR2
Creek Chub	Sep 13, 1996	337	92-1017	
	Oct 03, 1997	13	12-17	
	Sep 01, 1998	18	6-131	
Hatchery Rainbow Trout >=200mm	Oct 03, 1997	2	2-2	
	Sep 01, 1998	2	2-3	

Largemouth Bass	Sep 01, 1998	2	2-6
Longnose Dace	Sep 13, 1996	7	8-10
	Oct 03, 1997	7	8-13
	Sep 01, 1998	29	22-46
	Sep 18, 2000	32	33-46
Rock Bass	Sep 13, 1996	2	2-2
	Oct 03, 1997	2	2-2
	Sep 01, 1998	3	3-4
	Sep 18, 2000	45	32-72
White Sucker	Sep 13, 1996	13	14-18
	Oct 03, 1997	6	4-21
	Sep 01, 1998	11	11-13
	Sep 18, 2000	34	35-43

Site 1864

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jul 28, 1993	23	11-82	

Brown Trout <200mm	Sep 04, 1996	200	185-215	
	Sep 18, 1997	77	65-93	
	Sep 01, 1998	333	315-351	
	Sep 26, 2000	463	463-463	
Brown Trout >=200mm	Jul 28, 1993	17	16-21	BR2
	Sep 04, 1996	24	24-25	BR2
	Sep 18, 1997	67	63-74	BR1
	Sep 01, 1998	49	46-55	BR1
	Sep 26, 2000	43	43-43	BR1
Creek Chub	Jul 28, 1993	385	342-428	
	Sep 04, 1996	96	94-100	
	Sep 18, 1997	6	5-13	
	Sep 01, 1998	1	1-1	
Hatchery Rainbow Trout >=200mm	Sep 18, 1997	1	1-2	
Largemouth Bass	Sep 01, 1998	4	4-4	
Longnose Dace	Jul 28, 1993	3	3-3	

Longnose Dace	Sep 04, 1996	18	16-25
	Sep 18, 1997	4	4-4
	Sep 01, 1998	5	5-7
	Sep 26, 2000	5	5-6
Rock Bass	Jul 28, 1993	4	4-4
	Sep 04, 1996	2	2-4
	Sep 18, 1997	1	1-1
	Sep 26, 2000	19	15-31
White Sucker	Jul 28, 1993	7	7-8
	Sep 04, 1996	6	6-8
	Sep 18, 1997	6	6-7
	Sep 01, 1998	6	6-8
	Sep 26, 2000	92	67-126

Site 1885

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 20, 1997	25	23-31	

Brown Trout <200mm	Sep 15, 1998	12	10-20	
	Sep 19, 2000	92	88-98	
Brown Trout >=200mm	Oct 20, 1997	87	86-90	BR1
	Sep 15, 1998	39	39-41	BR2
	Sep 19, 2000	41	41-43	BR1
Creek Chub	Oct 20, 1997	3	3-6	
Golden Shiner	Oct 20, 1997	2	2-4	
	Sep 15, 1998	3	3-4	
	Sep 19, 2000	1	1-2	
Hatchery Rainbow Trout >=200mm	Oct 20, 1997	14	9-35	
	Sep 15, 1998	4	4-4	
	Sep 19, 2000	3	3-5	
Largemouth Bass	Oct 20, 1997	7	7-9	
	Sep 15, 1998	15	15-16	
Longnose Dace	Oct 20, 1997	1	1-4	
	Sep 15, 1998	1	1-2	

Longnose Dace	Sep 19, 2000	1	1-1
Northern Pike	Sep 19, 2000	2	2-6
Rock Bass	Oct 20, 1997	24	18-40
	Sep 15, 1998	11	10-16
	Sep 19, 2000	95	39-257
White Sucker	Oct 20, 1997	62	61-65
	Sep 15, 1998	84	79-92
	Sep 19, 2000	62	45-91

Site 1900

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Black Crappie	Sep 21, 2000	6	6-8	
Brook Trout >=200mm	Sep 21, 2000	1	1-1	BK3
Brown Trout <200mm	Sep 02, 1993	2	2-2	
	Sep 09, 1996	8	8-8	
	Sep 08, 1998	1	1-2	
	Sep 21, 2000	22	22-23	

Brown Trout >=200mm	Sep 02, 1993	9	9-9	BR2
	Sep 09, 1996	16	14-23	BR2
	Sep 08, 1998	11	11-13	BR2
	Sep 21, 2000	30	30-30	BR1
Creek Chub	Sep 02, 1993	373	271-475	
	Sep 09, 1996	9	9-11	
Green Sunfish	Sep 02, 1993	1	1-5	
	Sep 21, 2000	1	1-2	
Hatchery Rainbow Trout <200mm	Sep 02, 1993	1	1-2	
	Sep 09, 1996	1	1-1	
Hatchery Rainbow Trout >=200mm	Sep 02, 1993	9	9-10	
	Sep 09, 1996	104	100-110	
	Sep 08, 1998	1	1-2	
Largemouth Bass	Sep 09, 1996	1	1-1	
	Sep 08, 1998	23	11-82	
	Sep 21, 2000	12	12-14	

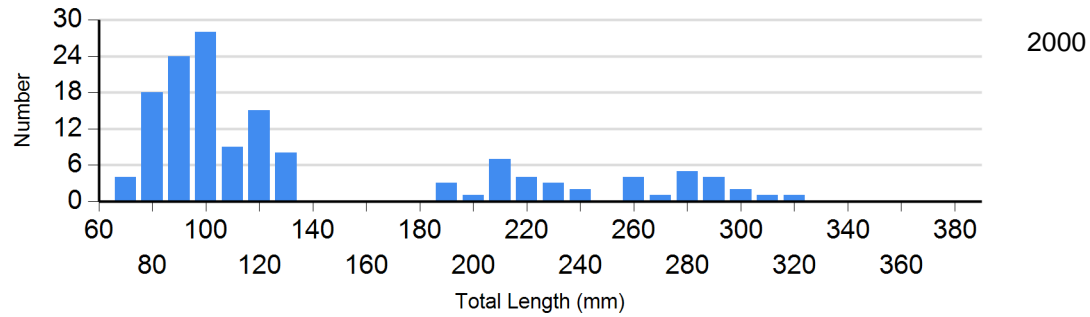
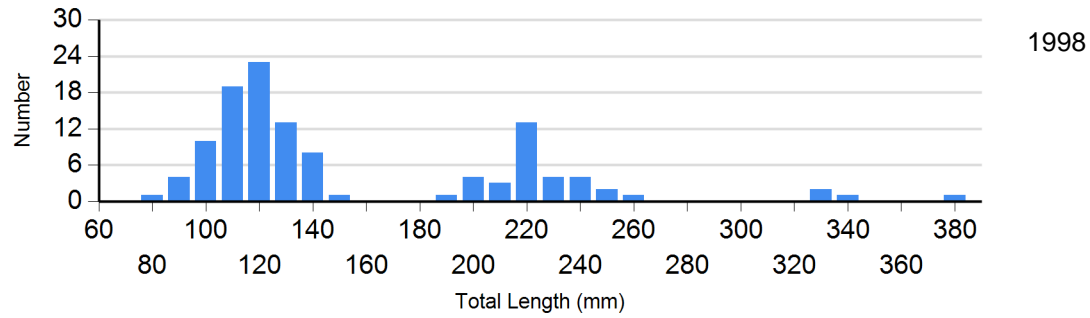
Northern Pike	Sep 02, 1993	1	1-1
	Sep 08, 1998	2	2-3
	Sep 21, 2000	2	2-2
Rock Bass	Sep 02, 1993	23	11-82
	Sep 09, 1996	20	10-70
	Sep 08, 1998	36	33-43
	Sep 21, 2000	12	12-12
White Sucker	Sep 02, 1993	8	8-10
	Sep 09, 1996	27	12-102
	Sep 08, 1998	20	10-70
	Sep 21, 2000	7	7-8

Length Frequency Distribution

Length frequency histogram of species sampled by year.

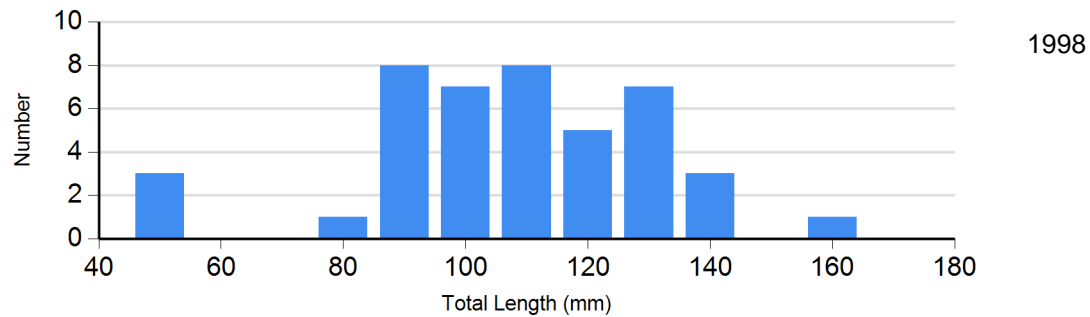
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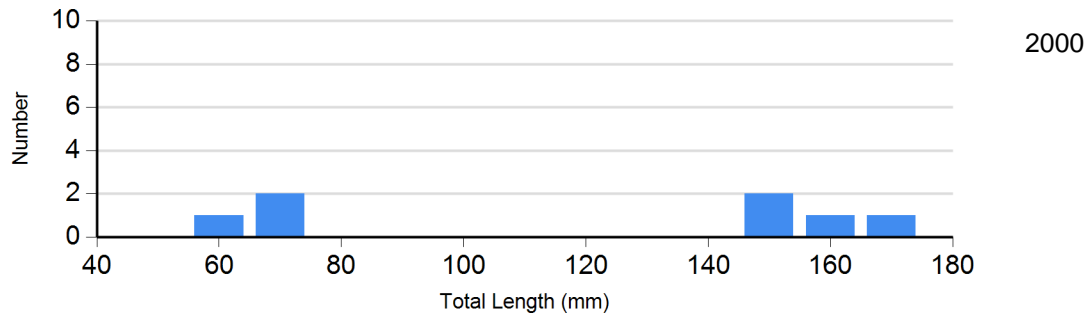
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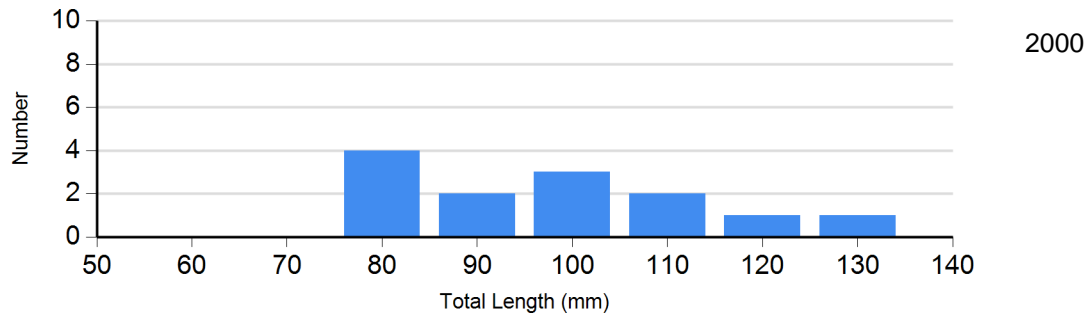
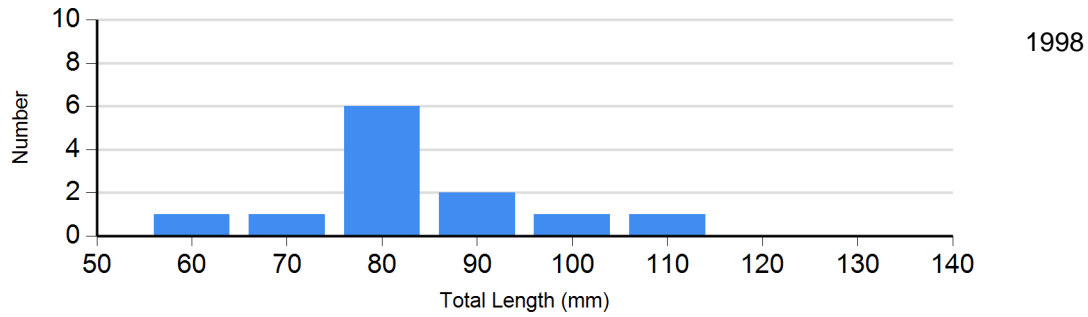
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Species: Creek Chub

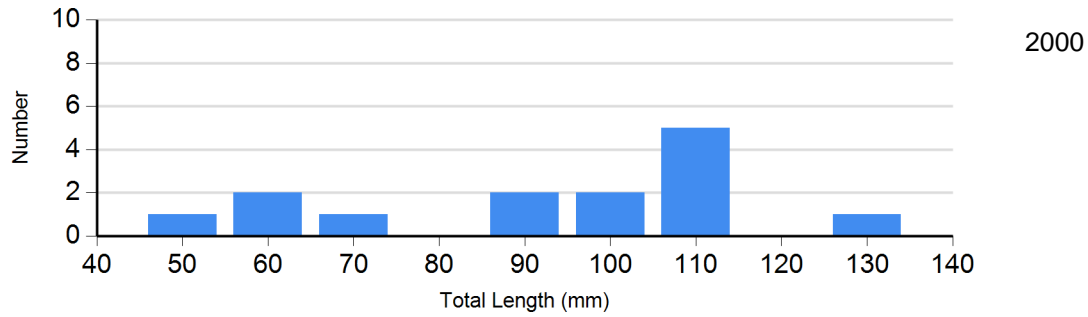
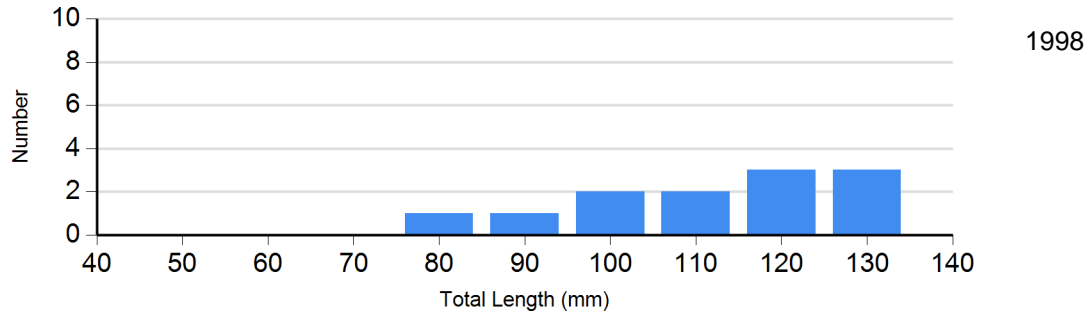




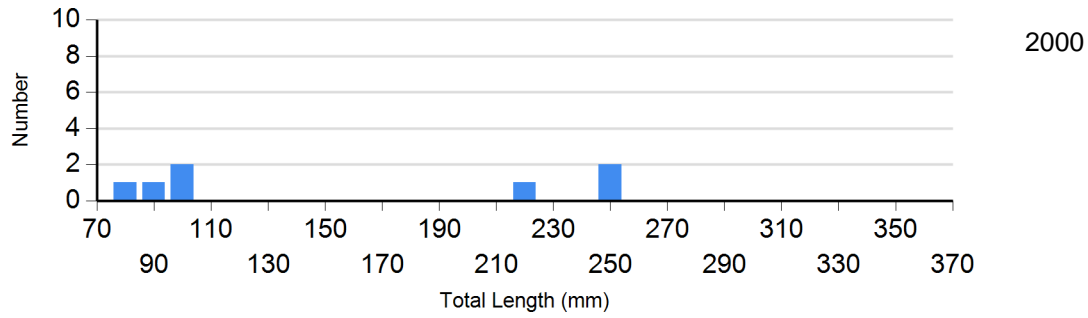
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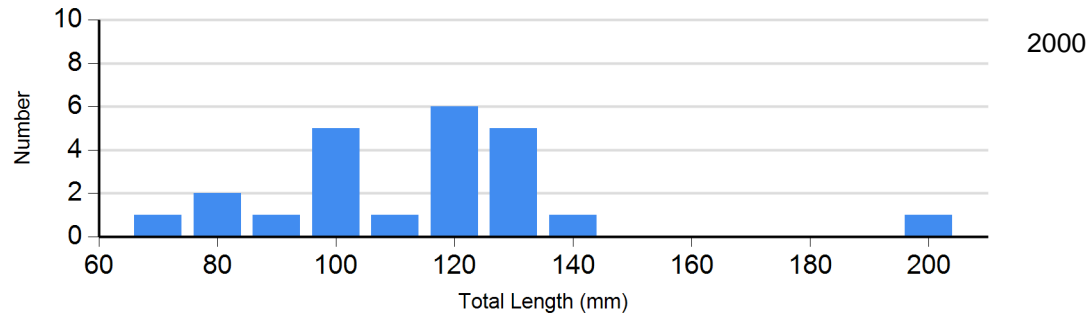
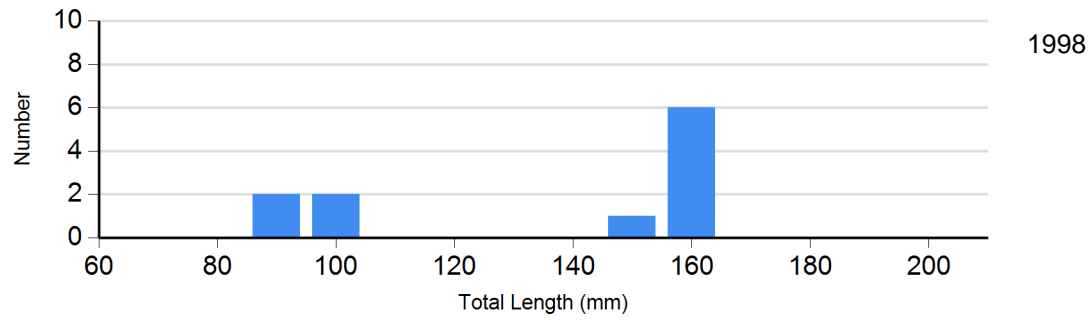
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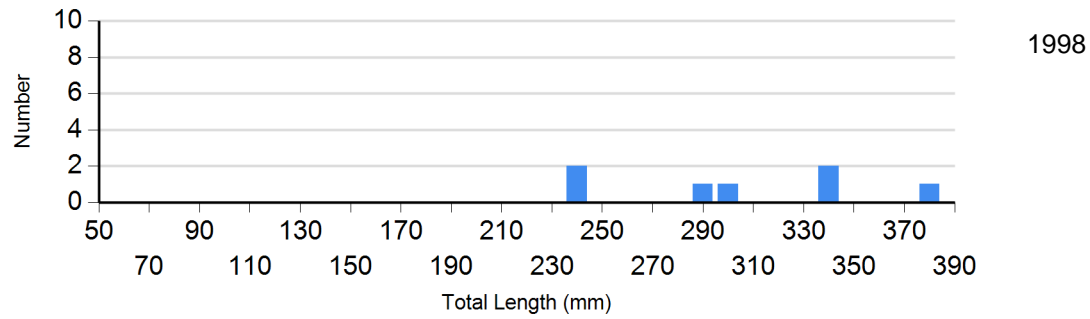
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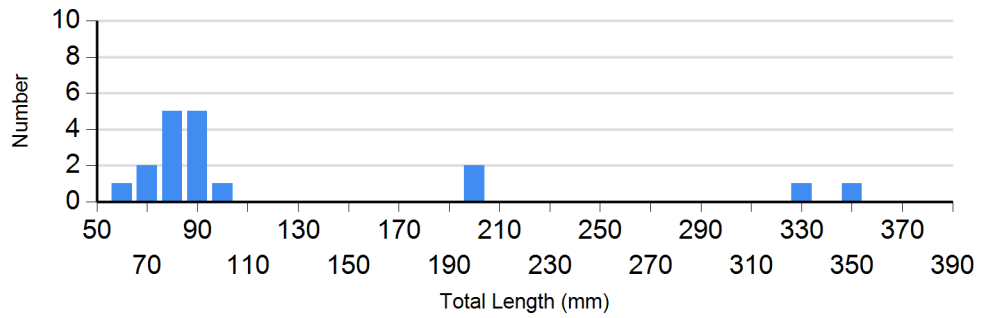


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Species: Rock Bass

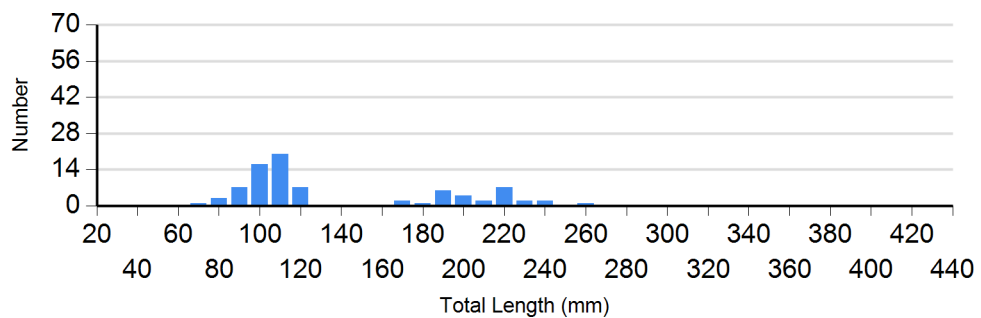
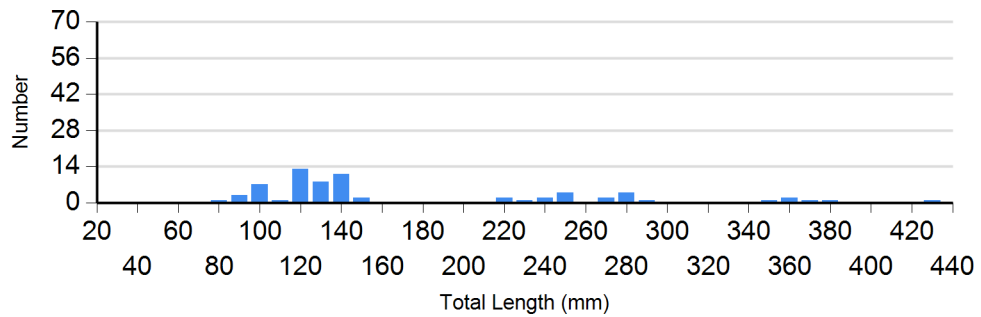
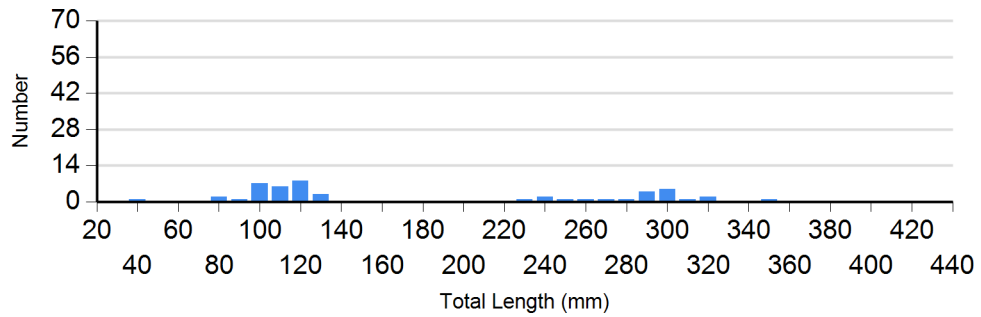


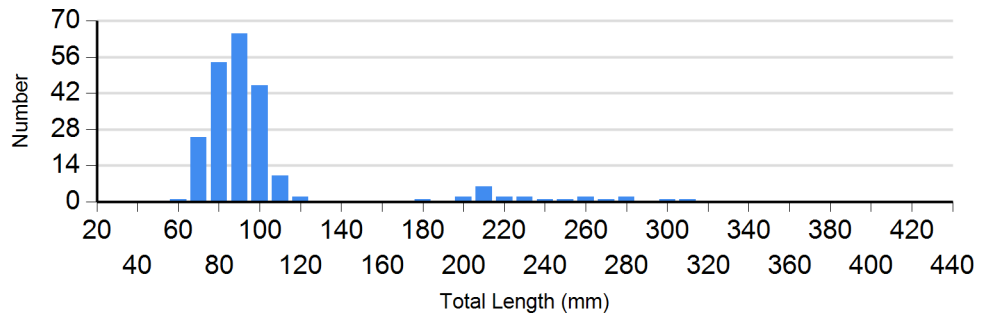
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Species: White Sucker



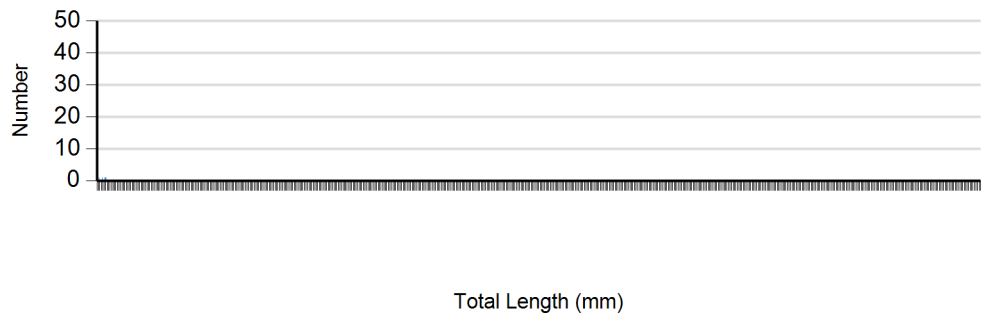
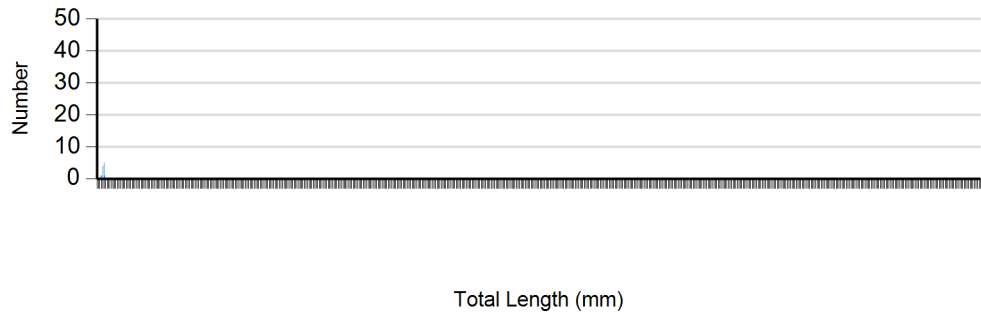
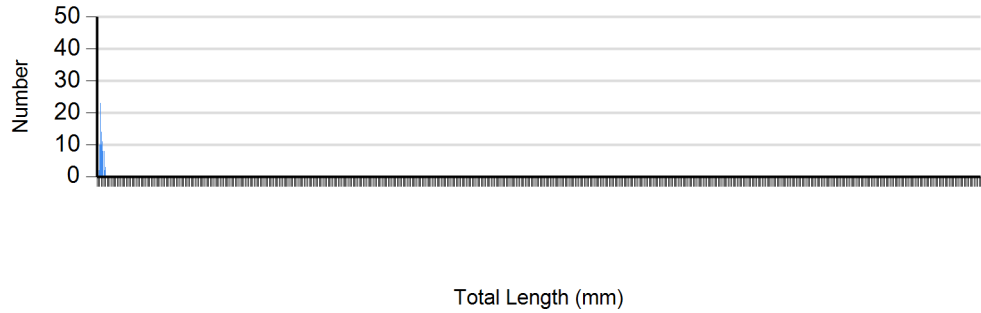


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Species: Brown Trout

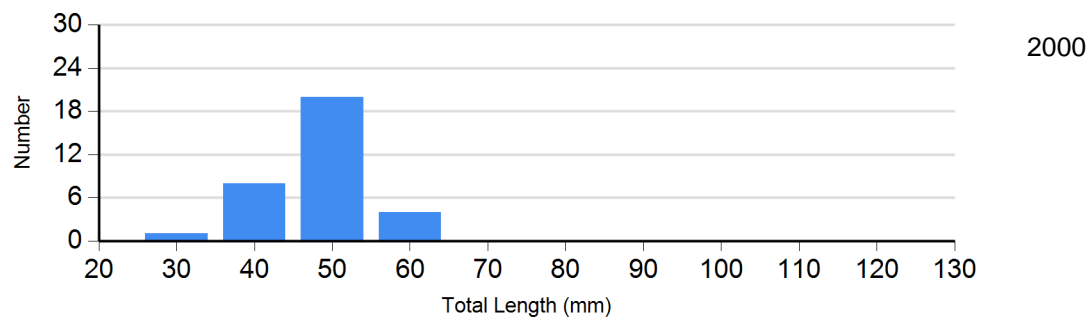
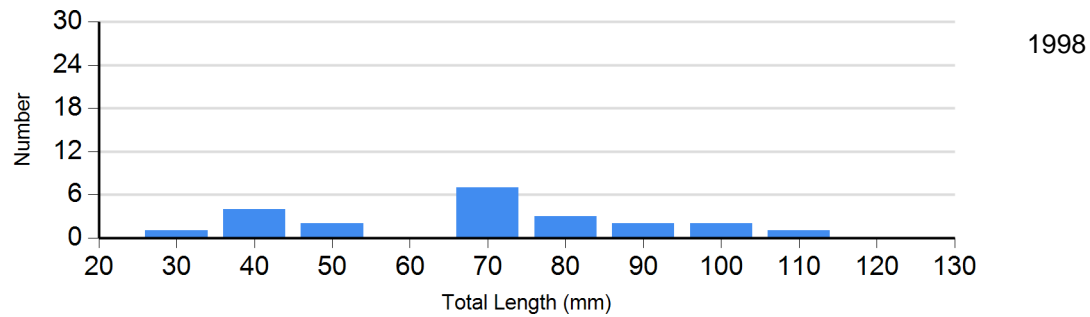
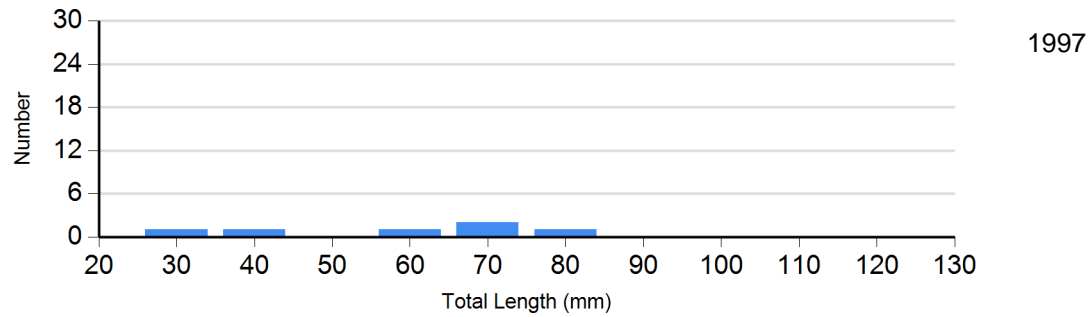
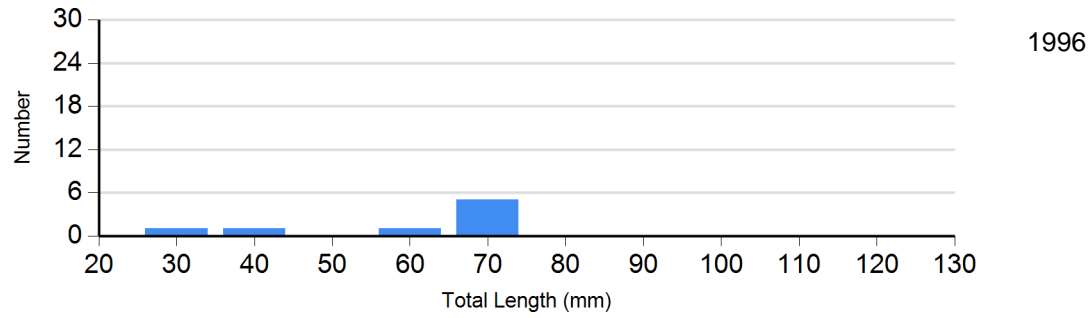




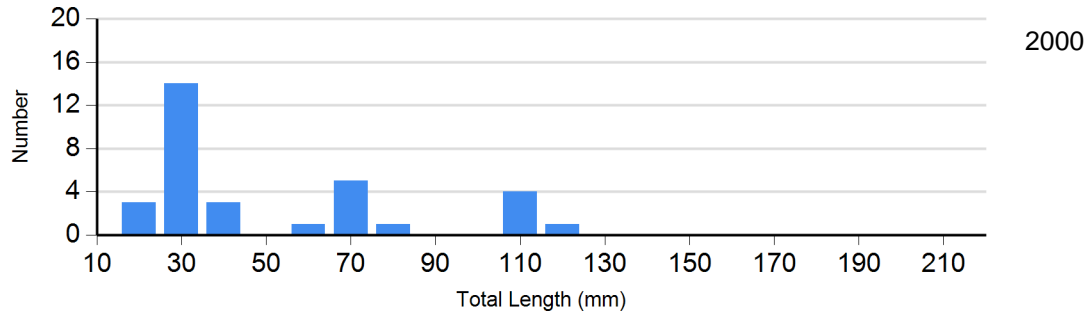
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Species: Creek Chub



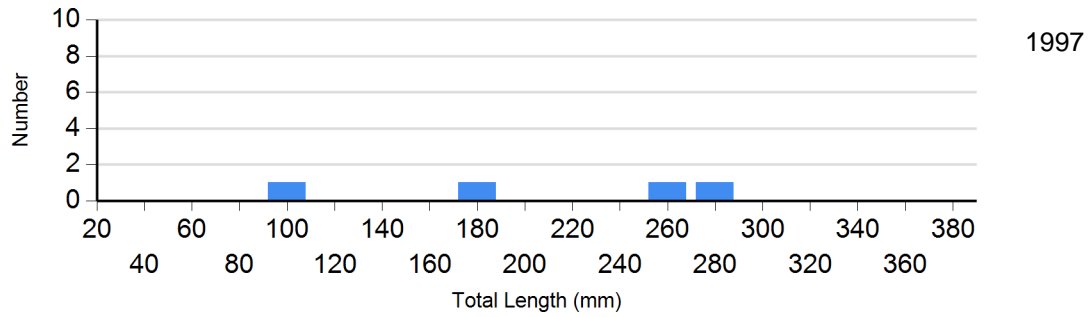
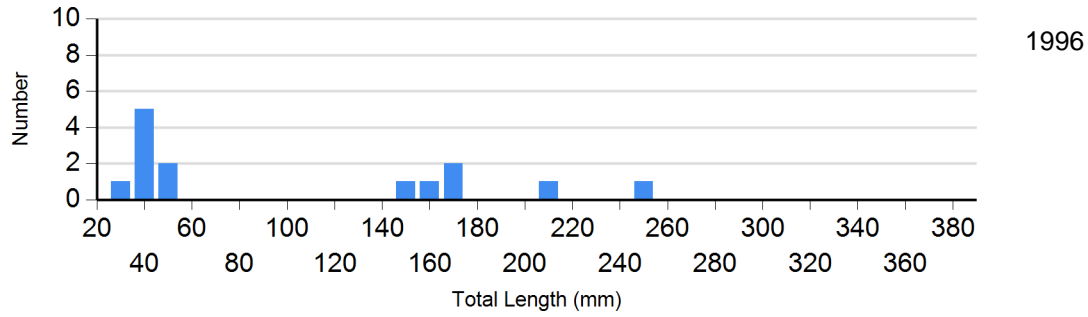
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Species: Longnose Dace

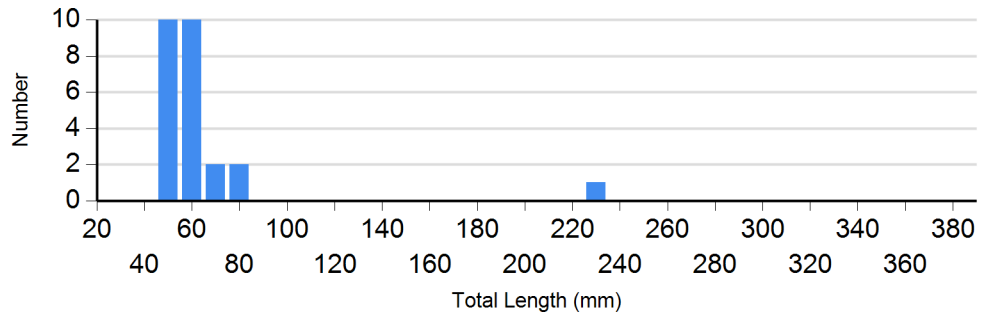
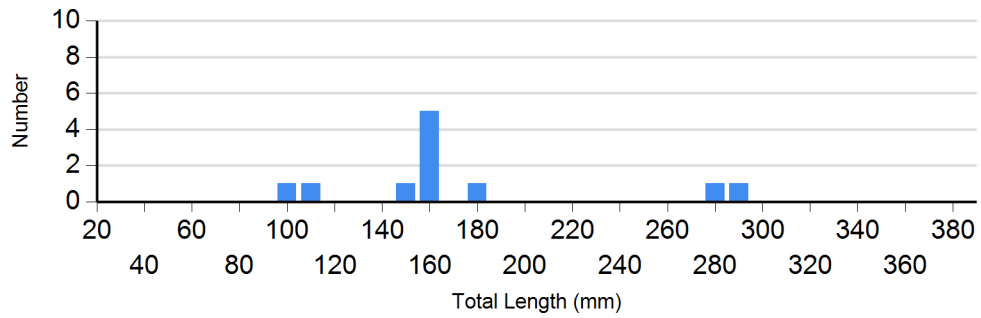


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Species: Rock Bass

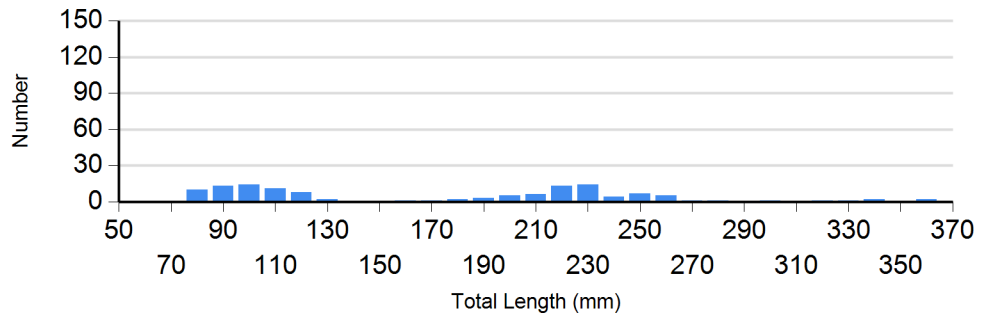
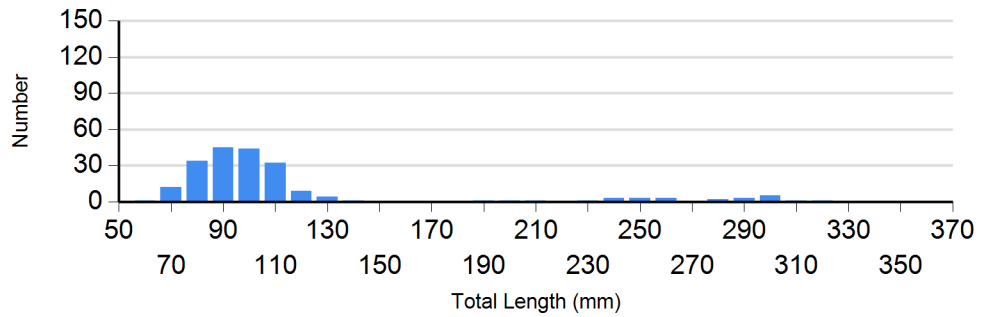


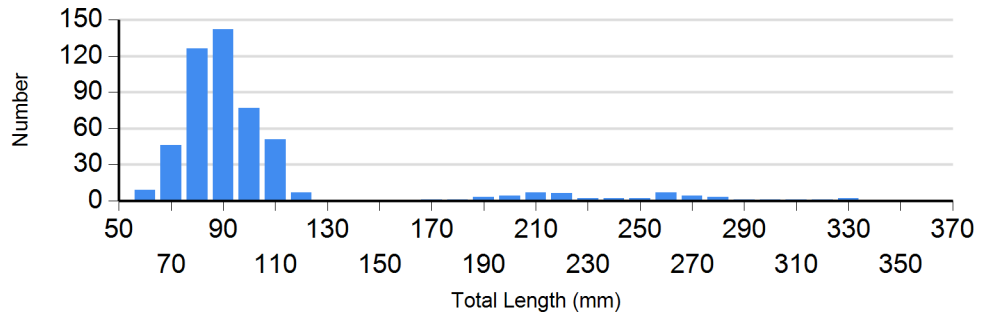
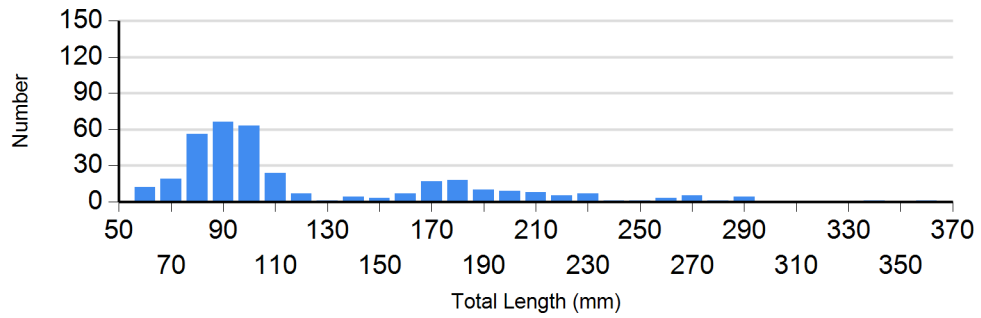
Site: 1840
Species: White Sucker



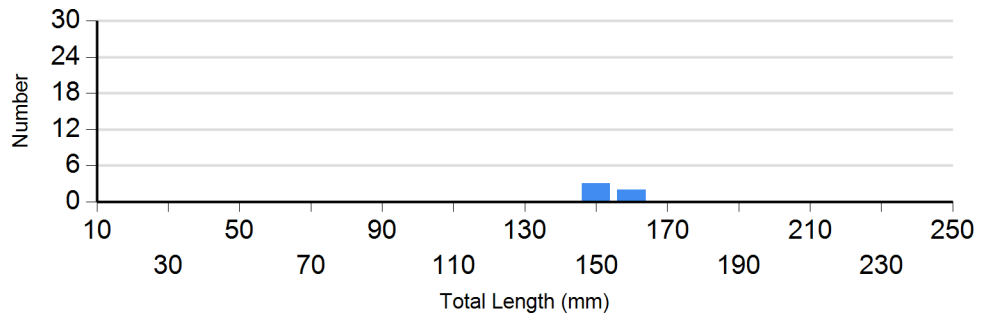
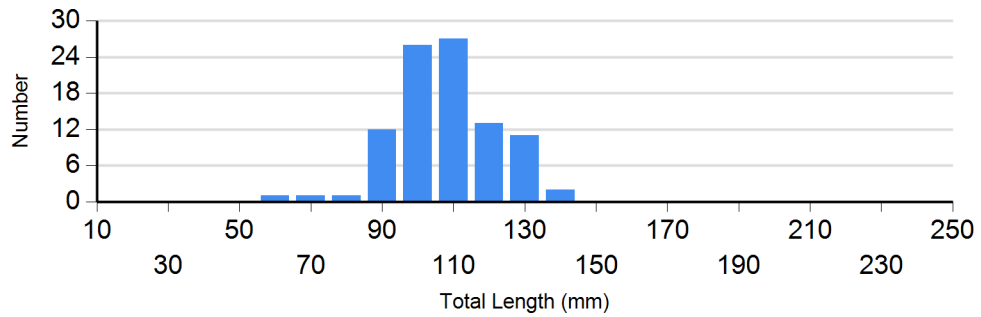


Site: 1864
Species: Brown Trout

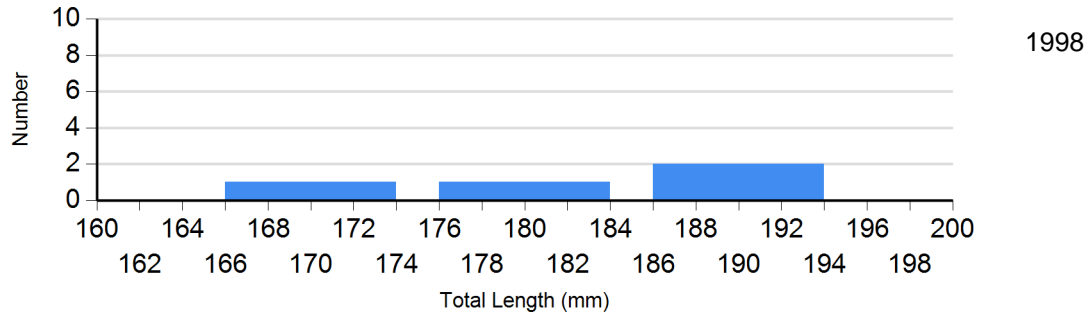




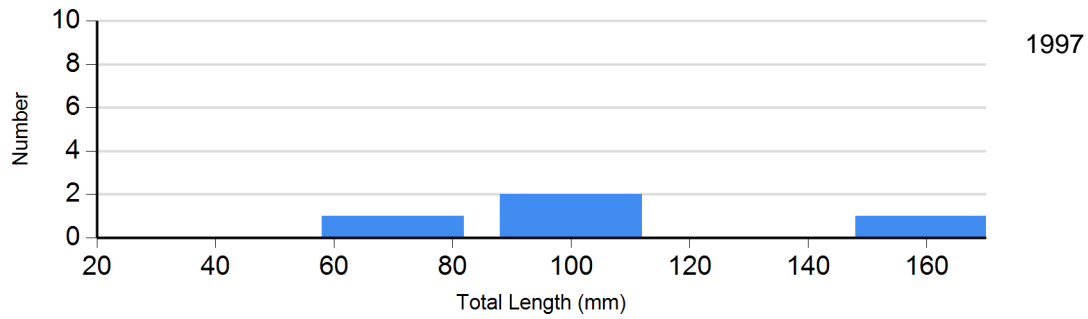
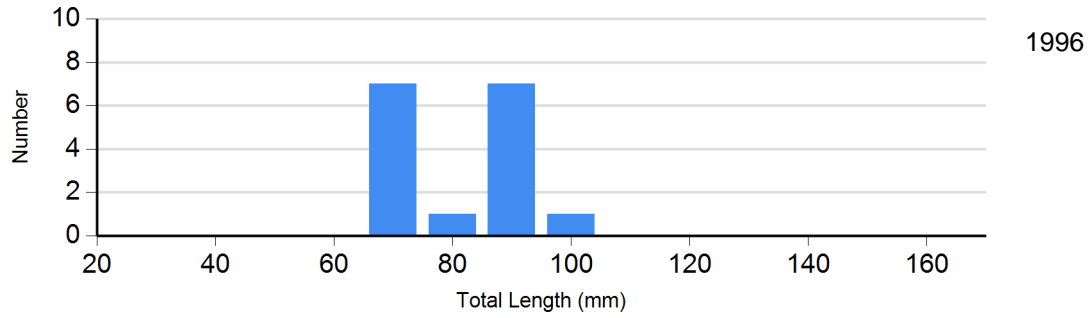
Site: 1864
Species: Creek Chub

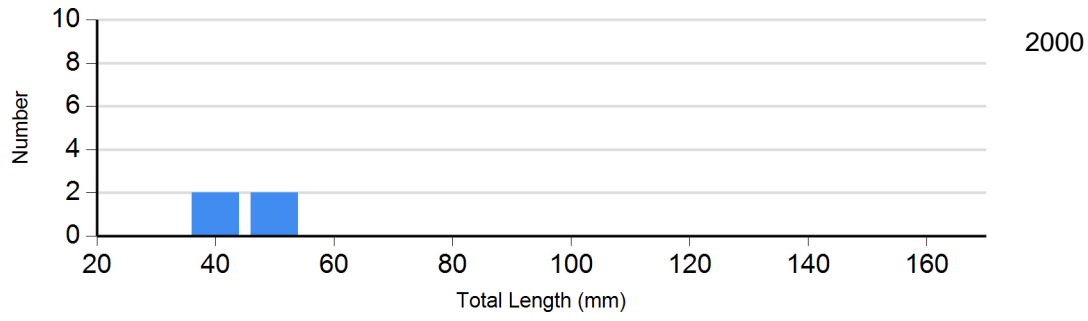
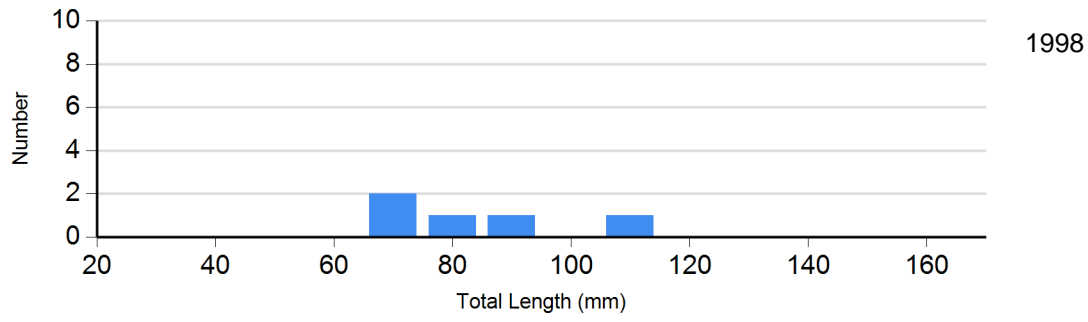


Site: 1864
Species: Largemouth Bass

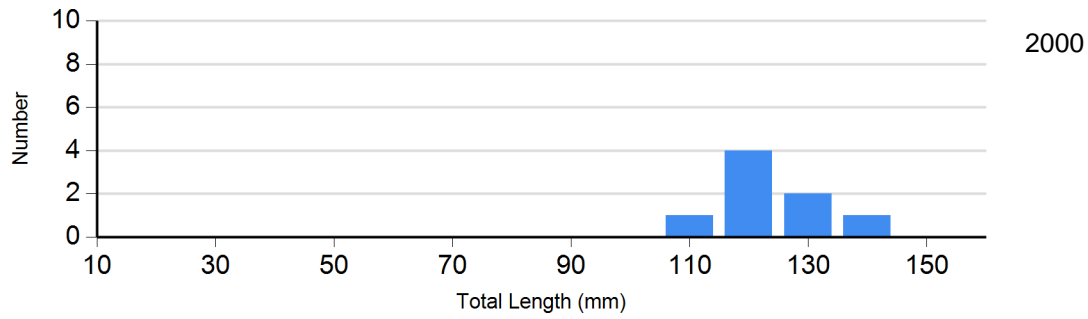


Site: 1864
Species: Longnose Dace

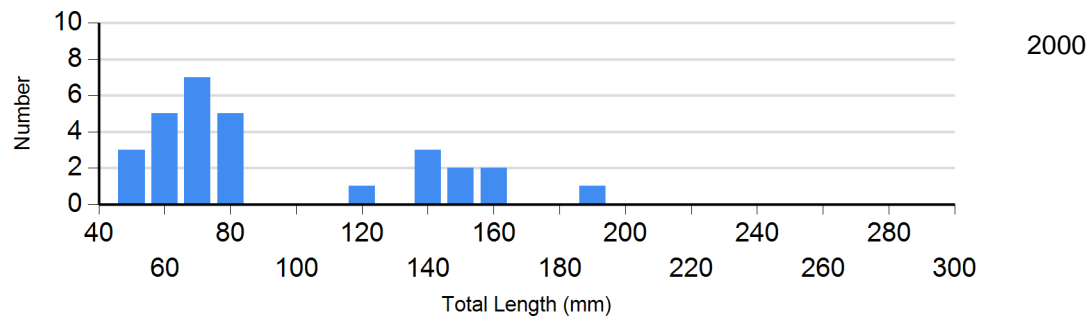
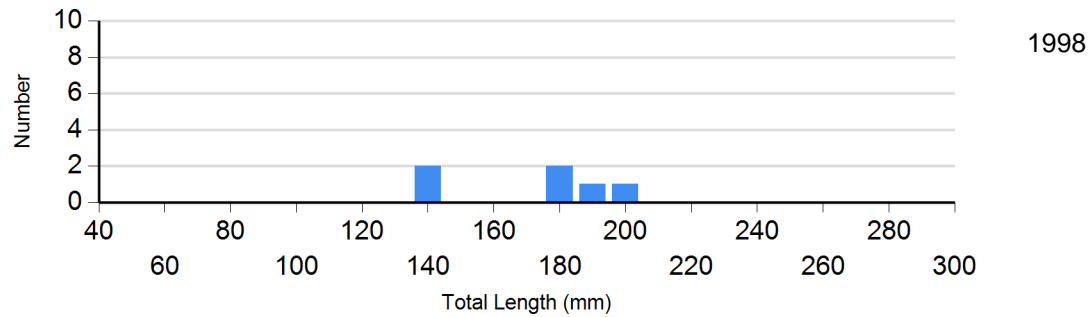
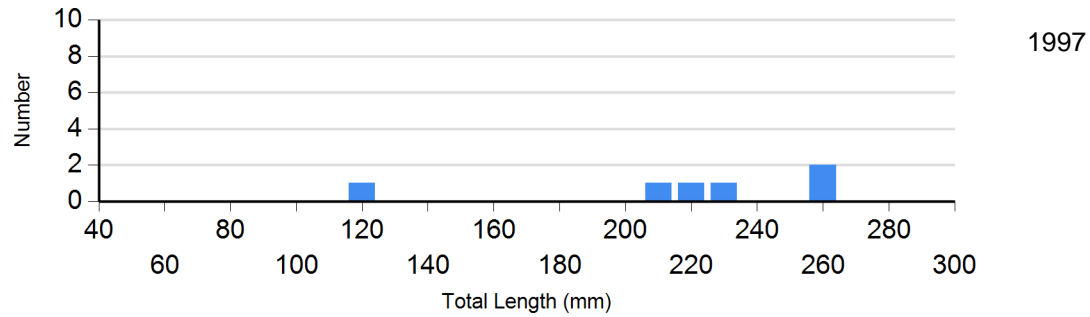
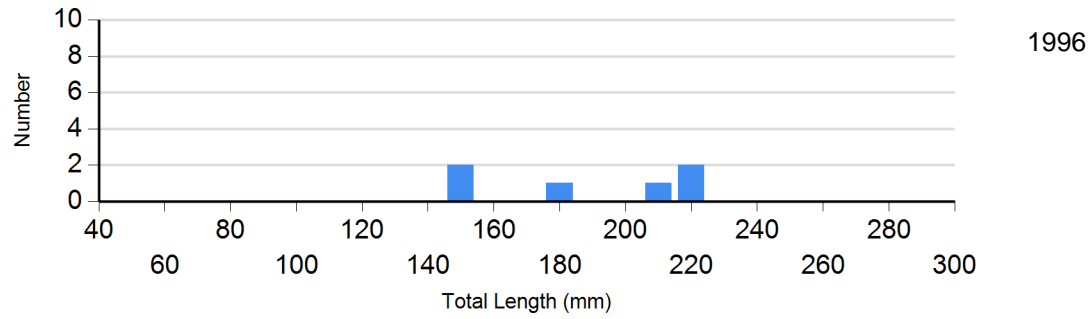




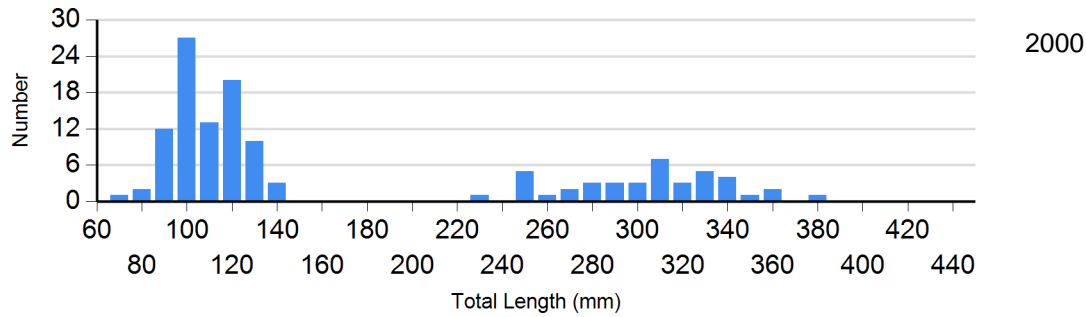
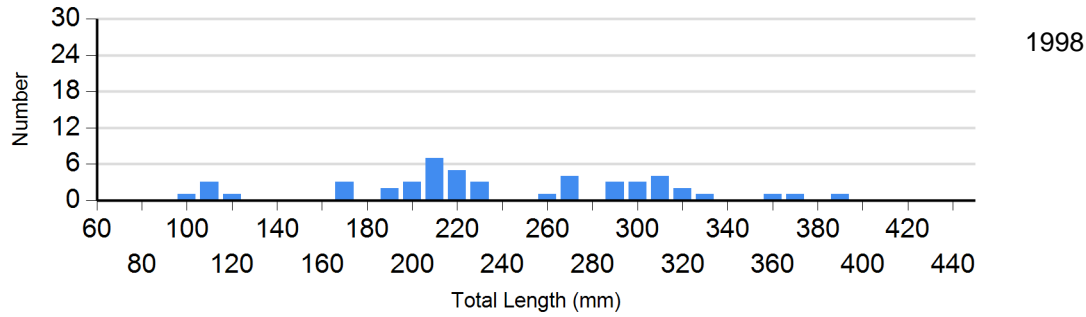
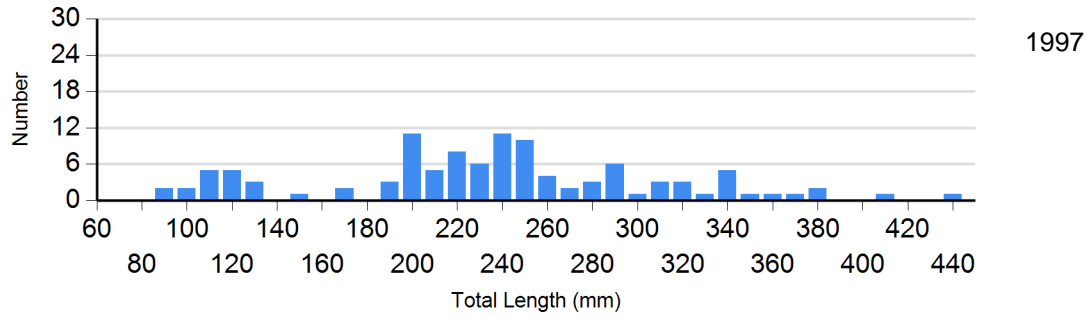
Site: 1864
Species: Rock Bass



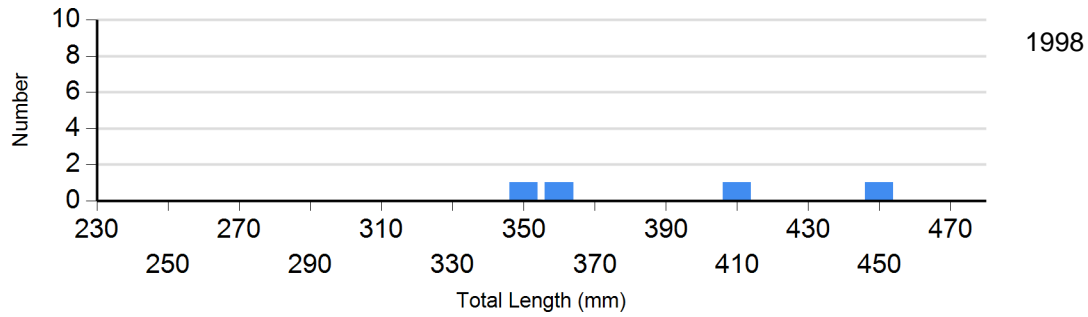
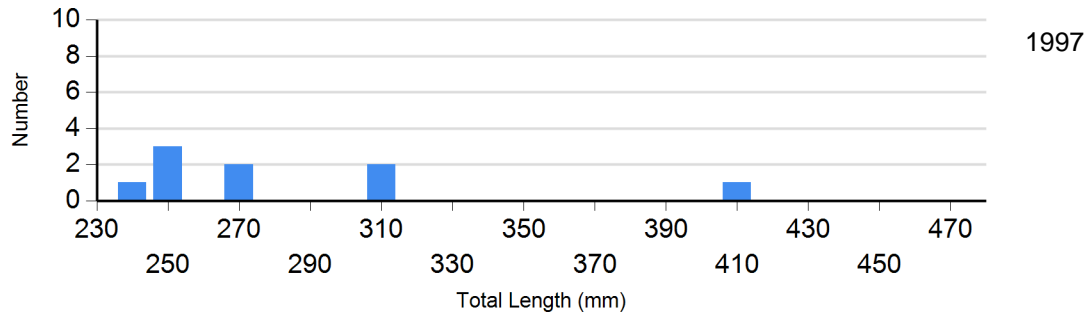
Site: 1864
Species: White Sucker



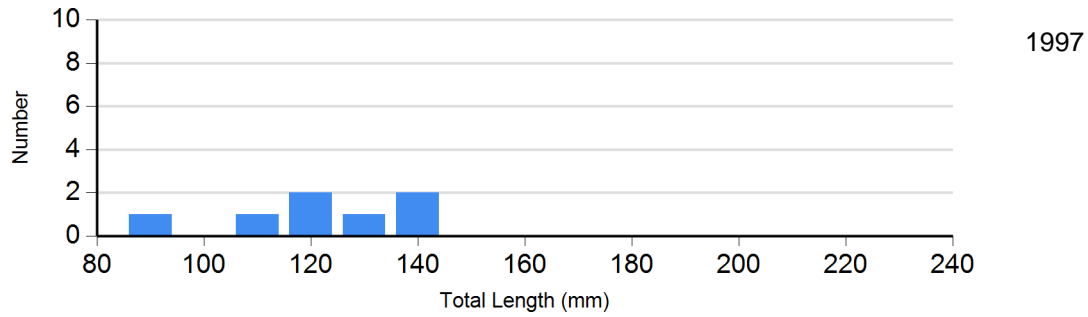
Site: 1885
Species: Brown Trout

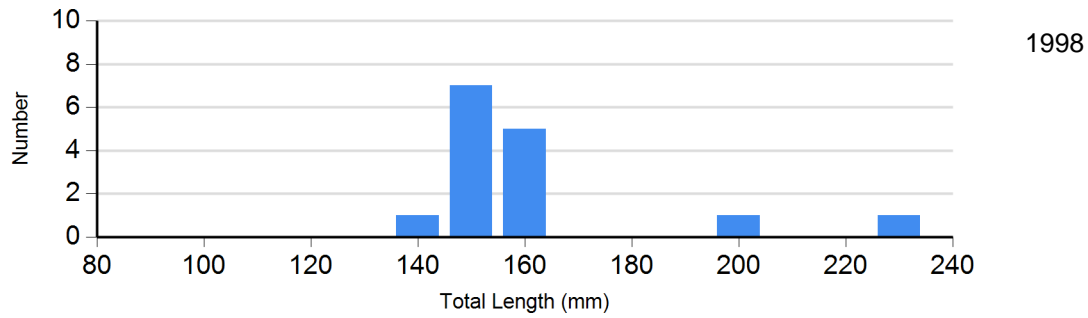


Site: 1885
Species: Hatchery Rainbow Trout

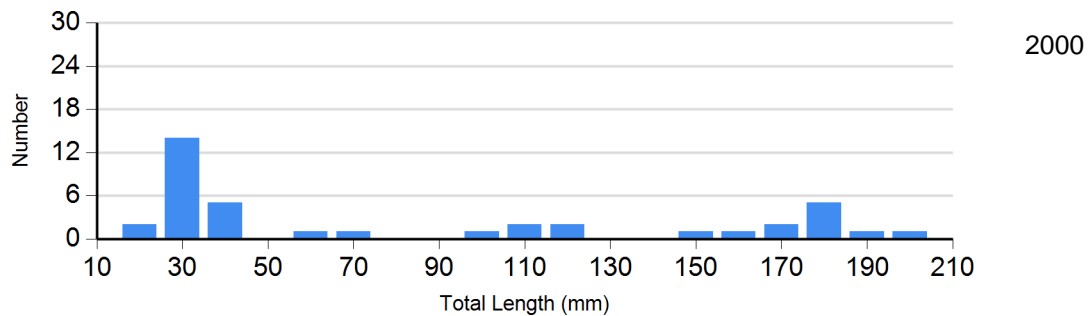
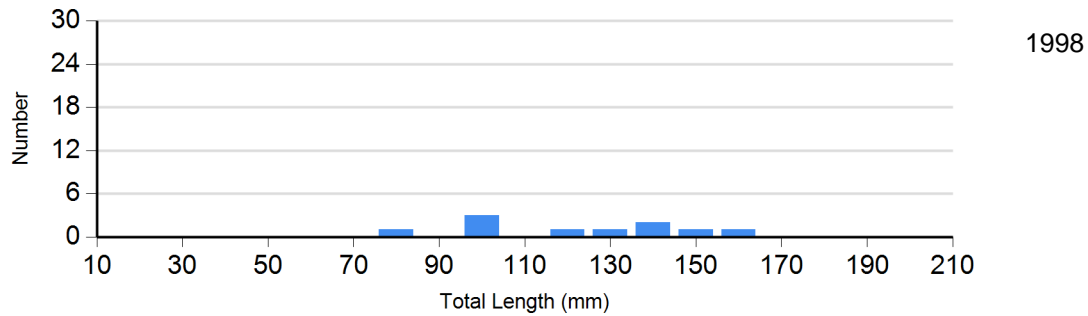
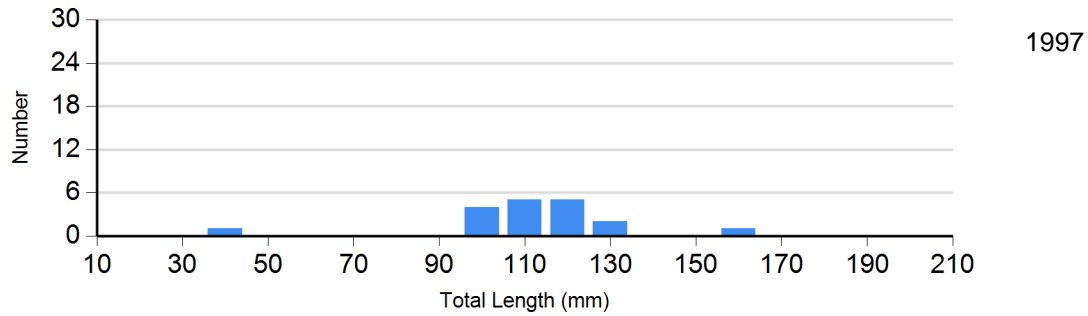


Site: 1885
Species: Largemouth Bass

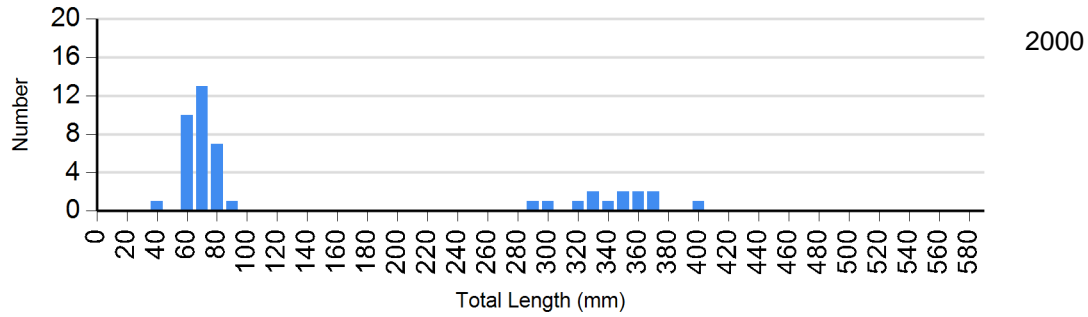
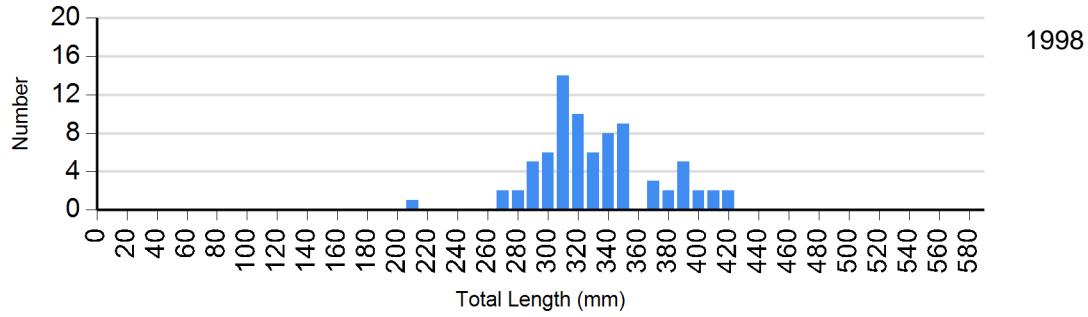
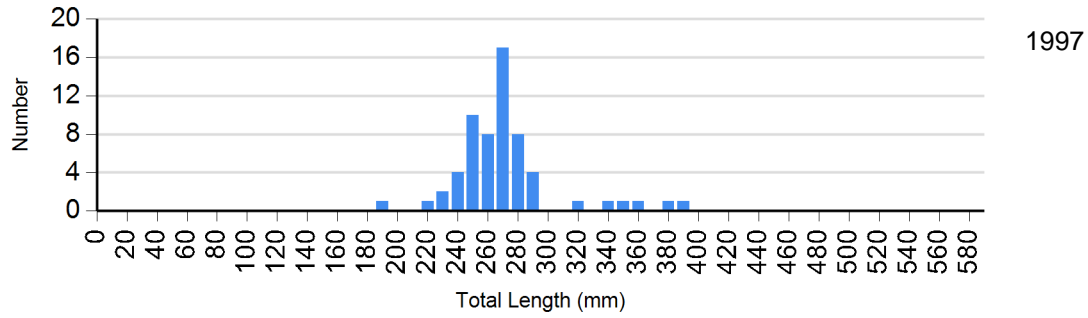




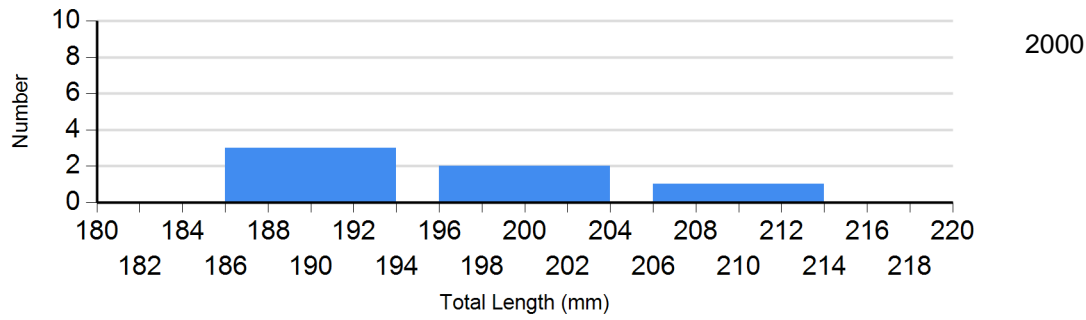
Site: 1885
Species: Rock Bass



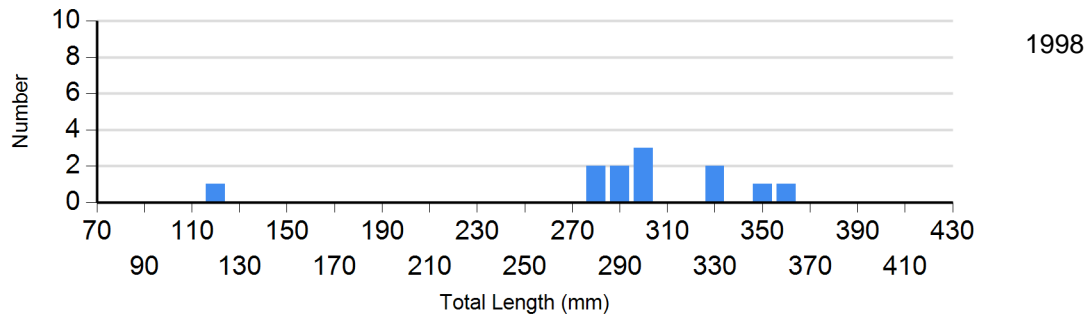
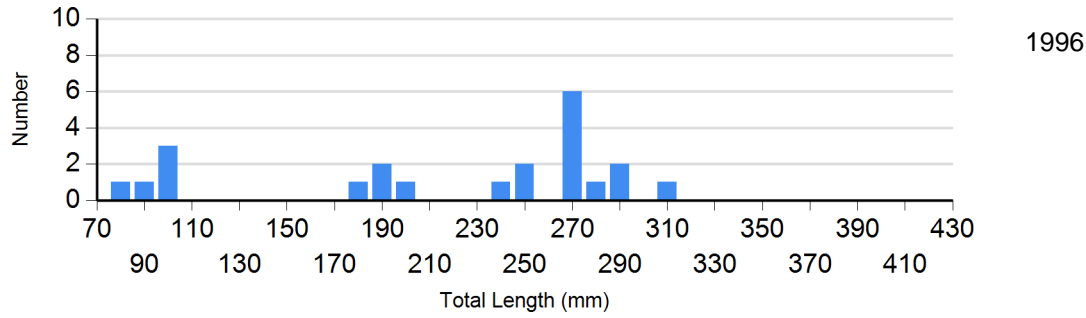
Site: 1885
Species: White Sucker

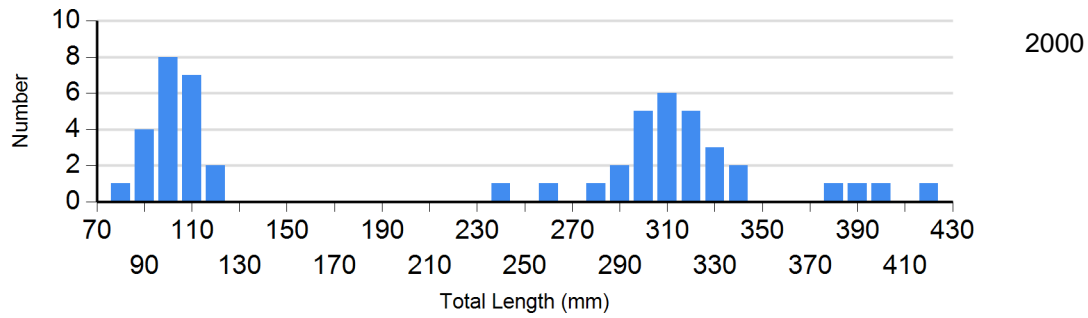


Site: 1900
Species: Black Crappie

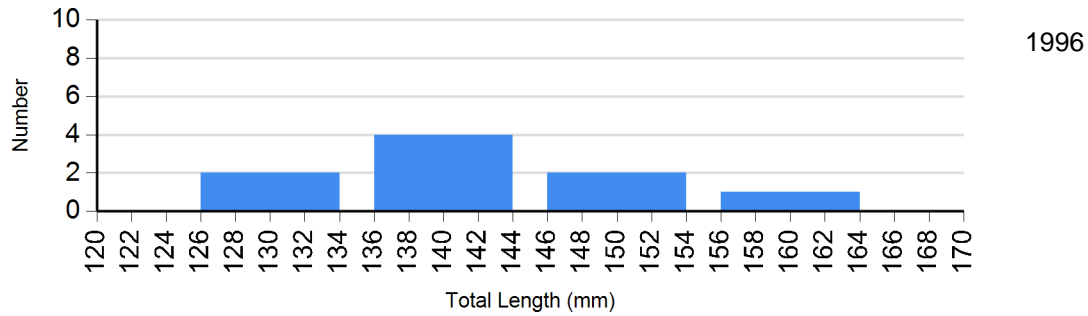


Site: 1900
Species: Brown Trout

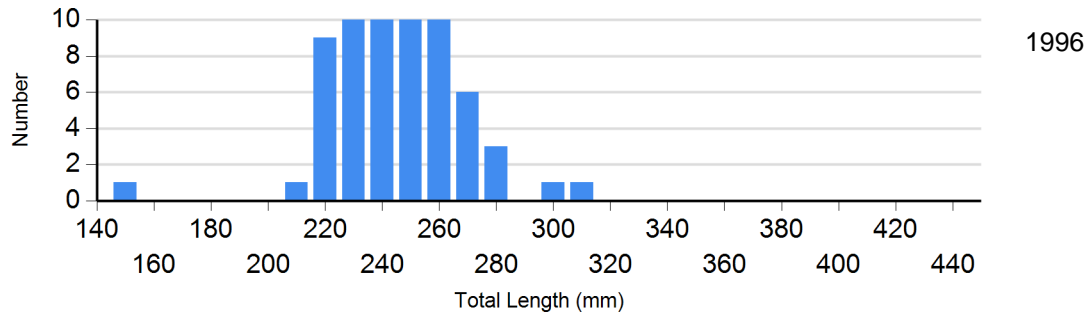




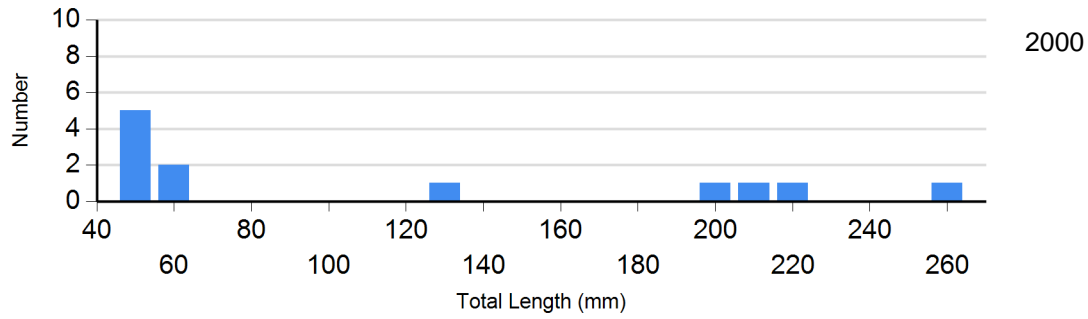
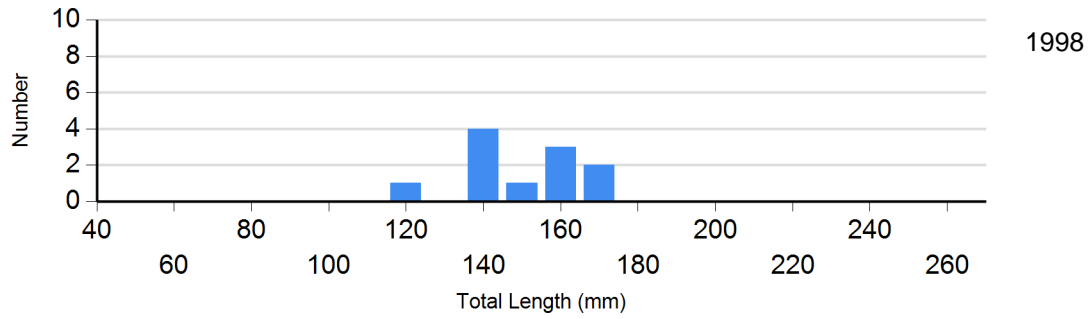
Site: 1900
Species: Creek Chub



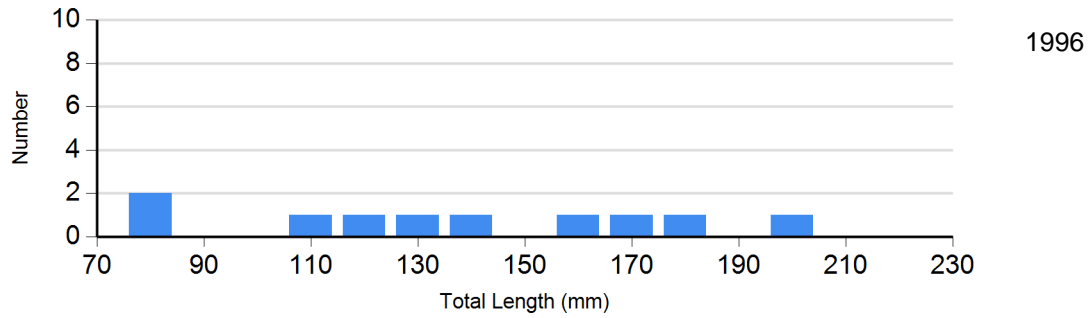
Site: 1900
Species: Hatchery Rainbow Trout

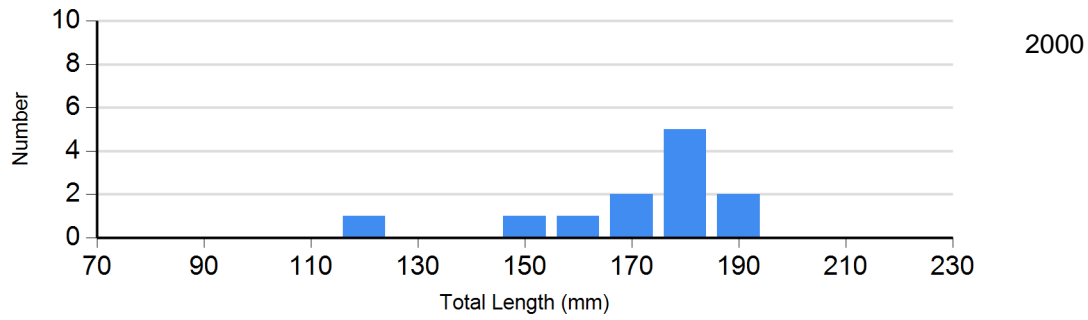
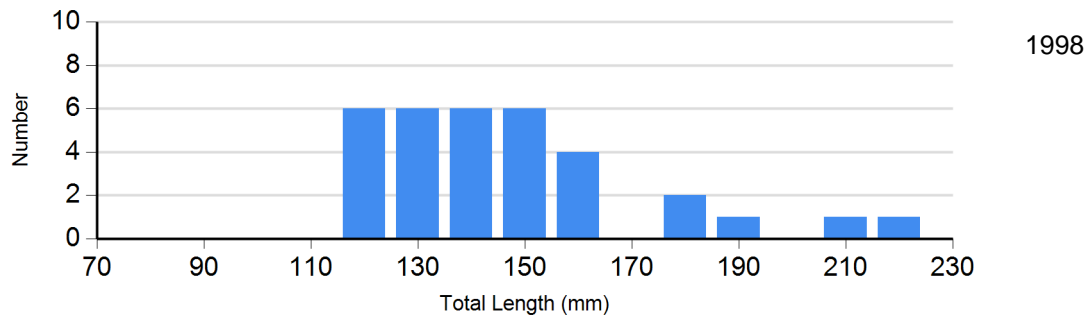


Site: 1900
Species: Largemouth Bass



Site: 1900
Species: Rock Bass





Site: 1900
Species: White Sucker

