

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**French Creek, Custer County**  
**21-0017-00**  
**1993**

Table 1. Population and Biomass Estimates for French Creek

<b>Site Number:</b> 875	<b>Date Sampled:</b> 09/07/1993	<b>Conductivity (umhos/cm):</b> 220
<b>Site Midpoint (Latitude, Longitude):</b> 43.71839672, -103.36797411	<b>Site Length (m):</b> 100	<b>pH:</b> 8.9
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 10.8	<b>Water Temperature (C):</b> 13.0
<b>Stream Classification:</b> BR2, RB0	<b>Number of Pass:</b> 3	<b>Voltage:</b> 350

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	8	8	8	8	74	5	80	30	4.21	129	167.1	63.6
Brown Trout	<200mm	231	249	263	235	2306	58	2490	934	51.65	4006	124.6	25.1
Brown Trout	>=200mm	38	38	40	38	352	45	380	143	40.07	611	235.0	127.6
Brown Trout	All	269	288	302	274	2667	106	2880	1080	94.20	4634	140.2	39.6
Creek Chub	All	32	34	39	32	315	6	340	128	5.79	547	117.8	20.6
Fathead Minnow	All	1	1	5	1	9	0	10	4	0.02	16	68.0	3.0
Longnose Dace	All	128	127	142	128	1176	5	1270	476	4.12	2043	69.3	3.9
Rainbow Trout	<200mm	16	17	21	16	157	3	170	64	2.49	274	108.6	17.8
Rainbow Trout	All	16	17	21	16	157	3	170	64	2.49	274	108.6	17.8
White Sucker	All	10	10	12	10	93	12	100	38	10.43	161	172.7	126.2

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<b>Site Number:</b> 995	<b>Date Sampled:</b> 09/07/1993	<b>Conductivity (umhos/cm):</b> 202
<b>Site Midpoint (Latitude, Longitude):</b> 43.72722249, -103.43860513	<b>Site Length (m):</b> 100	<b>pH:</b> 8.9
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 6.5	<b>Water Temperature (C):</b> 11.0
<b>Stream Classification:</b> BR2	<b>Number of Pass:</b> 3	<b>Voltage:</b>

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	4	4	5	4	62	4	40	25	3.26	64	172.3	59.0
Brown Trout	>=200mm	9	9	10	9	139	14	90	56	12.16	145	216.6	97.8
Brown Trout	All	13	13	14	13	201	17	130	82	15.42	209	202.9	85.8
Creek Chub	All	18	18	19	18	279	7	180	113	6.45	290	141.5	25.9
Longnose Dace	All	413	795	1065	525	12307	48	7950	4984	43.14	12792	74.2	3.9
Mountain Sucker	All	28	29	33	28	449	11	290	182	9.69	467	118.0	24.2
White Sucker	All	55	55	56	55	851	57	550	345	50.93	885	184.7	67.0

Site Number: 1062

Site Midpoint (Latitude, Longitude): 43.70983667, -103.46744341

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR0

Date Sampled: 07/21/1993

Site Length (m): 100

Mean Width (m): 7.0

Number of Pass: 3

Conductivity (umhos/cm): 236

pH: 8.6

Water Temperature (C): 17.0

Voltage: 400

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	5	6	13	5	86	6	60	35	5.23	97	163.2	68.2
Brown Trout	<200mm	1	1	2	1	14	0	10	6	0.04	16	65.0	3.0
Brown Trout	All	1	1	2	1	14	0	10	6	0.04	16	65.0	3.0
Creek Chub	All	37	75	170	37	1074	18	750	435	15.79	1207	107.7	16.5
Fathead Minnow	All	4	4	5	4	57	0	40	23	0.19	64	68.3	3.8
Hatchery Brown Trout	>=200mm	22	24	30	22	344	59	240	139	52.29	386	250.1	170.3
Hatchery Brown Trout	All	22	24	30	22	344	59	240	139	52.29	386	250.1	170.3
Longnose Dace	All	77	95	117	77	1361	4	950	551	3.82	1529	66.7	3.1

Mountain Sucker	All	9	10	15	9	143	6	100	58	5.47	161	144.7	42.8
White Sucker	All	115	213	341	115	3052	198	2130	1236	176.70	3427	163.2	64.9

**Site Number:** 1130  
**Site Midpoint (Latitude, Longitude):** 43.71860787, -103.48972931  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BR3

**Date Sampled:** 07/21/1993  
**Site Length (m):** 100  
**Mean Width (m):** 6.6  
**Number of Pass:** 3  
**Conductivity (umhos/cm):** 220  
**pH:** 8.4  
**Water Temperature (C):** 16.0  
**Voltage:** 350

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	1	1	1	1	15	1	10	6	1.17	16	197.0	87.0
Brown Trout	>=200mm	2	2	2	2	30	4	20	12	3.71	32	234.0	138.0
Brown Trout	All	3	3	3	3	45	5	30	18	4.88	48	221.7	121.0
Creek Chub	All	17	20	29	17	301	6	200	122	5.52	322	127.5	20.5
Hatchery Brown Trout	<200mm	2	2	2	2	30	2	20	12	1.51	32	179.5	56.0
Hatchery Brown Trout	>=200mm	24	24	24	24	361	48	240	146	42.65	386	238.3	132.2
Hatchery Brown Trout	All	26	26	26	26	392	49	260	159	44.16	418	233.8	126.3
Longnose Dace	All	259	423	550	296	6370	26	4230	2580	23.14	6806	74.6	4.1
Mountain Sucker	All	9	9	10	9	136	6	90	55	5.51	145	157.1	45.6
White Sucker	All	88	90	94	88	1355	114	900	549	101.44	1448	186.1	83.8

**Site Number:** 1159  
**Site Midpoint (Latitude, Longitude):** 43.71916963, -103.50696188  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BR3

**Date Sampled:** 09/08/1993  
**Site Length (m):** 100  
**Mean Width (m):** 3.6  
**Number of Pass:** 3  
**Conductivity (umhos/cm):** 199  
**pH:**  
**Water Temperature (C):** 9.0  
**Voltage:** 300

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	1	1	2	1	28	0	10	11	0.38	16	111.0	15.0
Brown Trout	>=200mm	2	2	2	2	56	7	20	23	6.30	32	239.5	125.5
Brown Trout	All	3	3	4	3	84	7	30	34	6.67	48	196.7	88.7
Creek Chub	All	209	301	374	228	8455	84	3010	3424	74.58	4843	76.8	9.9
Fathead Minnow	All	8	8	10	8	225	1	80	91	0.67	129	67.8	3.3
Hatchery Brown Trout	>=200mm	8	8	8	8	225	45	80	91	40.51	129	268.6	201.9
Hatchery Brown Trout	All	8	8	8	8	225	45	80	91	40.51	129	268.6	201.9
Hatchery Rainbow Trout	>=200mm	1	1	5	1	28	4	10	11	3.99	16	212.0	159.0
Hatchery Rainbow Trout	All	1	1	5	1	28	4	10	11	3.99	16	212.0	159.0
Longnose Dace	All	301	300	325	301	8427	31	3000	3413	27.99	4827	65.2	3.7
Mountain Sucker	All	7	7	9	7	197	2	70	80	2.21	113	99.6	12.6
White Sucker	All	40	40	42	40	1124	113	400	455	101.33	644	195.5	101.0

**Site Number:** 1175  
**Site Midpoint (Latitude, Longitude):** 43.72893468, -103.50268003  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BR3

**Date Sampled:** 09/08/1993  
**Site Length (m):** 100  
**Mean Width (m):** 4.2  
**Number of Pass:** 3  
**Conductivity (umhos/cm):** 220  
**pH:** 8.9  
**Water Temperature (C):** 15.0  
**Voltage:** 300

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	7	7	8	7	166	3	70	67	2.69	113	119.0	18.1
Brown Trout	>=200mm	2	2	2	2	47	6	20	19	5.44	32	237.0	128.5
Brown Trout	All	9	9	10	9	213	9	90	86	8.12	145	145.2	42.7

Creek Chub	All	108	159	216	108	3768	70	1590	1526	62.71	2558	73.2	18.6
Hatchery Brown Trout	>=200mm	6	6	6	6	142	33	60	58	29.41	97	270.3	231.7
Hatchery Brown Trout	All	6	6	6	6	142	33	60	58	29.41	97	270.3	231.7
Longnose Dace	All	239	238	265	239	5640	21	2380	2284	18.84	3829	63.5	3.7
Mountain Sucker	All	1	1	1	1	24	1	10	10	0.97	16	160.0	46.0
White Sucker	All	30	30	31	30	711	100	300	288	89.12	483	226.6	140.4

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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	
<b>Class BR1</b>	Number of wild Brown Trout exceeds 150 per acre
<b>Class BR2</b>	Number of wild Brook Trout ranges from 25 to 150 per acre
<b>Class BR3</b>	Number of wild Brown Trout is less than 25 per acre
<b>Class BK1</b>	Number of wild Brook Trout exceeds 150 per acre
<b>Class BK2</b>	Number of wild Brook Trout ranges from 25 to 150 per acre
<b>Class BK3</b>	Number of wild Brook Trout is less than 25 per acre
<b>Class RB1</b>	Number of wild Rainbow Trout exceeds 25 per acre
<b>Class RB2</b>	Number of wild Rainbow Trout is less than 25 per acre

Table 2. Species composition and population estimates on French Creek, 1983-1993

**Site 875**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Black Crappie	Sep 07, 1993	8	8-8	
Brown Trout <200mm	Sep 07, 1993	249	235-263	
Brown Trout >=200mm	Sep 07, 1993	38	38-40	BR2
Creek Chub	Sep 07, 1993	34	32-39	
Fathead Minnow	Sep 07, 1993	1	1-5	
Longnose Dace	Sep 07, 1993	127	128-142	
Rainbow Trout <200mm	Sep 07, 1993	17	16-21	

White Sucker

Sep 07, 1993

10

10-12

**Site 995**

<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brown Trout <200mm	Sep 07, 1993	4	4-5	
Brown Trout >=200mm	Sep 07, 1993	9	9-10	BR2
Creek Chub	Sep 07, 1993	18	18-19	
Longnose Dace	Sep 07, 1993	795	525-1065	
Mountain Sucker	Sep 07, 1993	29	28-33	
White Sucker	Sep 07, 1993	55	55-56	

**Site 1062**

<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Black Crappie	Jul 21, 1993	6	5-13	
Brown Trout <200mm	Jul 21, 1993	1	1-2	
Creek Chub	Jul 21, 1993	75	37-170	
Fathead Minnow	Jul 21, 1993	4	4-5	
Hatchery Brown Trout >=200mm	Jul 21, 1993	24	22-30	
Longnose Dace	Jul 21, 1993	95	77-117	

Mountain Sucker	Jul 21, 1993	10	9-15
White Sucker	Jul 21, 1993	213	115-341

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**Site 1130**


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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brown Trout <200mm	Jul 21, 1993	1	1-1	
Brown Trout >=200mm	Jul 08, 1992	9	9-9	BR2
	Jul 21, 1993	2	2-2	BR3
Creek Chub	Jul 08, 1992	74	71-79	
	Jul 21, 1993	20	17-29	
Fathead Minnow	Jul 08, 1992	3	3-4	
Hatchery Brown Trout <200mm	Jul 21, 1993	2	2-2	
Hatchery Brown Trout >=200mm	Jul 21, 1993	24	24-24	
Longnose Dace	Jul 08, 1992	292	118-583	
	Jul 21, 1993	423	296-550	
Mountain Sucker	Jul 08, 1992	19	19-20	
	Jul 21, 1993	9	9-10	

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White Sucker	Jul 08, 1992	124	124-125
	Jul 21, 1993	90	88-94

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**Site 1159**


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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brown Trout <200mm	Sep 08, 1993	1	1-2	
Brown Trout >=200mm	May 05, 1992	10	10-11	BR2
	Sep 08, 1993	2	2-2	BR3
Creek Chub	May 05, 1992	123	111-137	
	Sep 08, 1993	301	228-374	
Fathead Minnow	May 05, 1992	1	1-1	
	Sep 08, 1993	8	8-10	
Hatchery Brown Trout >=200mm	Sep 08, 1993	8	8-8	
Hatchery Rainbow Trout >=200mm	Sep 08, 1993	1	1-5	
Longnose Dace	Sep 08, 1993	300	301-325	
Mountain Sucker	May 05, 1992	36	33-43	
	Sep 08, 1993	7	7-9	

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White Sucker	May 05, 1992	39	38-43
	Sep 08, 1993	40	40-42

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**Site 1175**


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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brown Trout <200mm	May 05, 1992	1	1-4	
	Sep 08, 1993	7	7-8	
Brown Trout >=200mm	May 05, 1992	37	34-44	BR1
	Sep 08, 1993	2	2-2	BR3
Creek Chub	May 05, 1992	43	44-53	
	Sep 08, 1993	159	108-216	
Hatchery Brown Trout >=200mm	Sep 08, 1993	6	6-6	
Longnose Dace	May 05, 1992	27	28-38	
	Sep 08, 1993	238	239-265	
Mountain Sucker	May 05, 1992	31	14-115	
	Sep 08, 1993	1	1-1	
Rainbow Trout <200mm	May 05, 1992	1	1-1	

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White Sucker

May 05, 1992

92

70-123

Sep 08, 1993

30

30-31

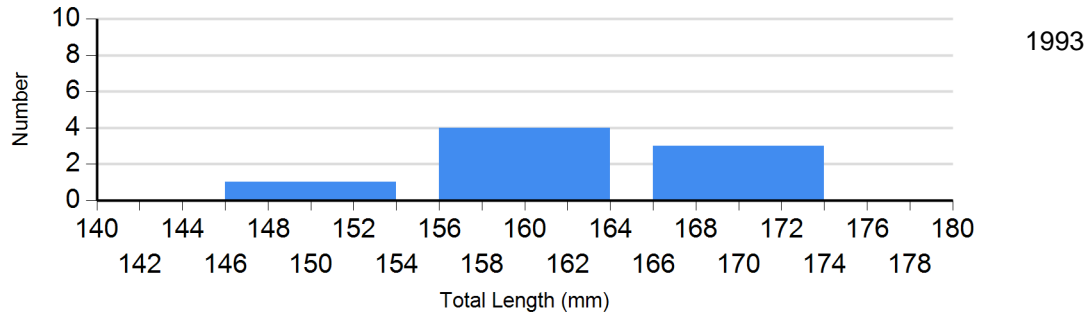
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## Length Frequency Distribution

Length frequency histogram of species sampled by year.

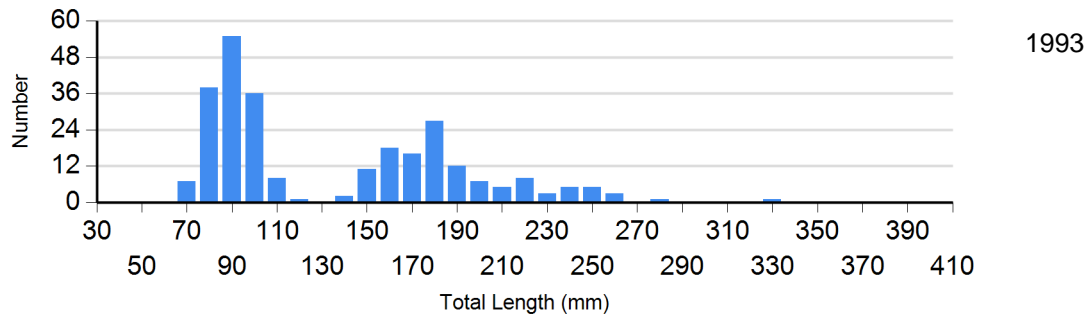
**Site:** 875

**Species:** Black Crappie



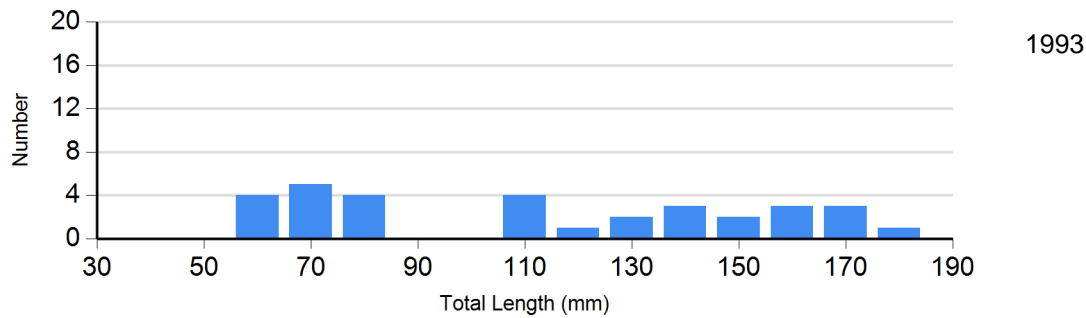
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**Species:** Brown Trout

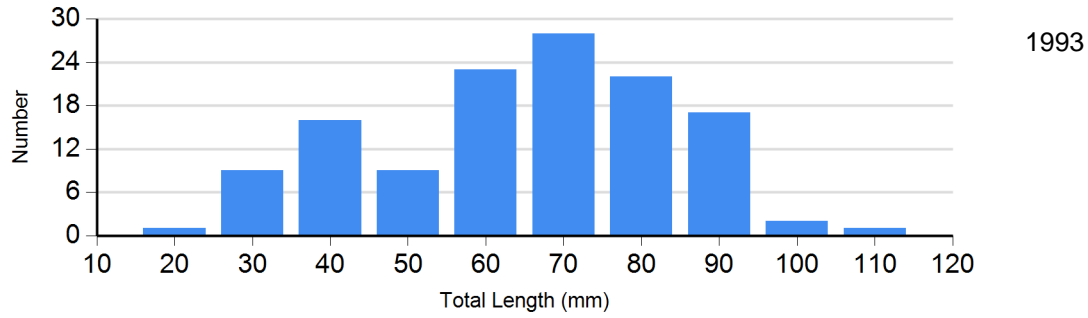


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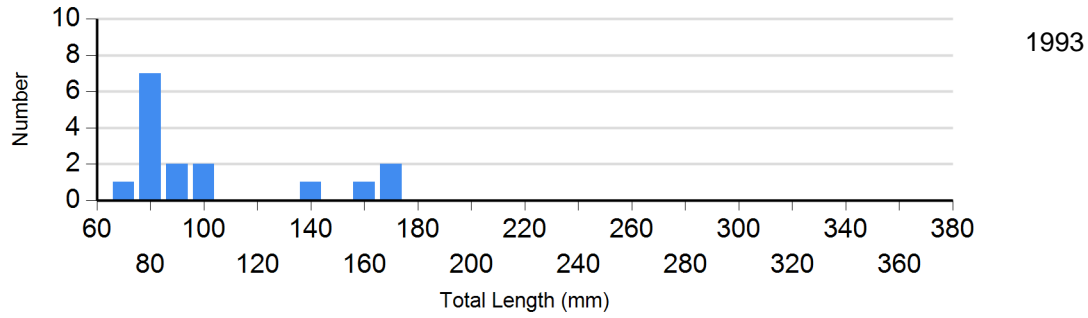
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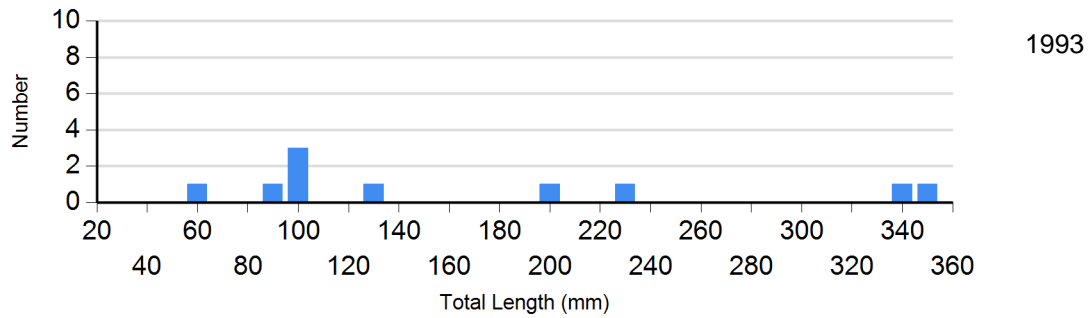
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**Species:** Longnose Dace



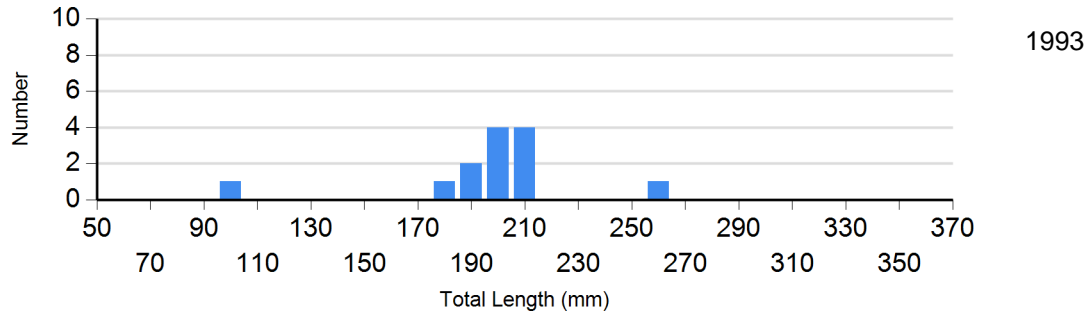
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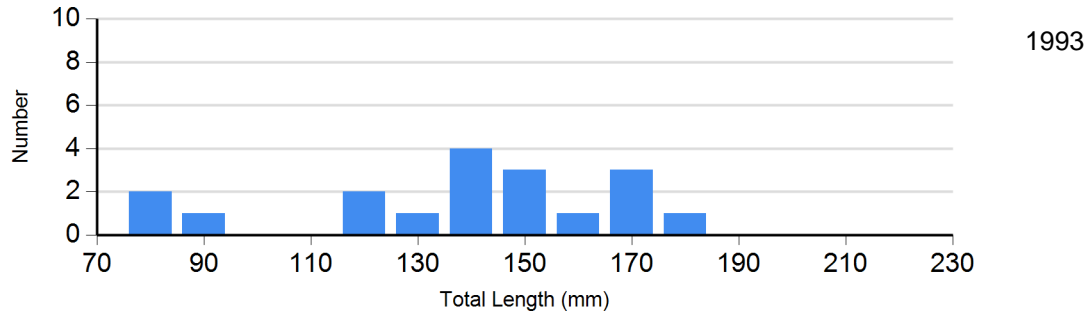
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**Species:** White Sucker



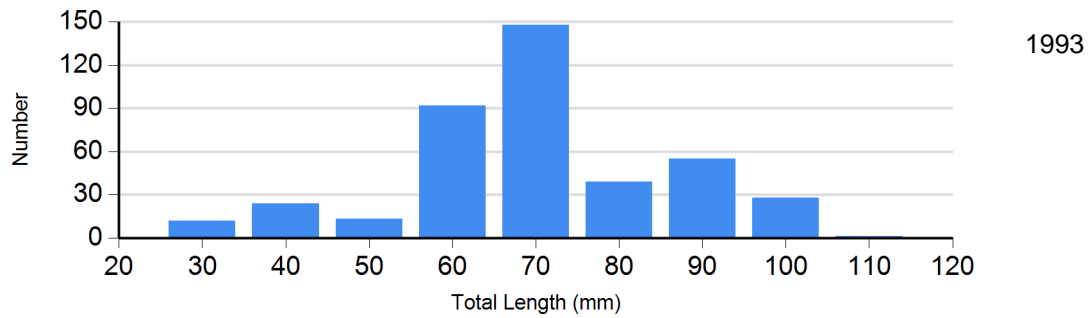
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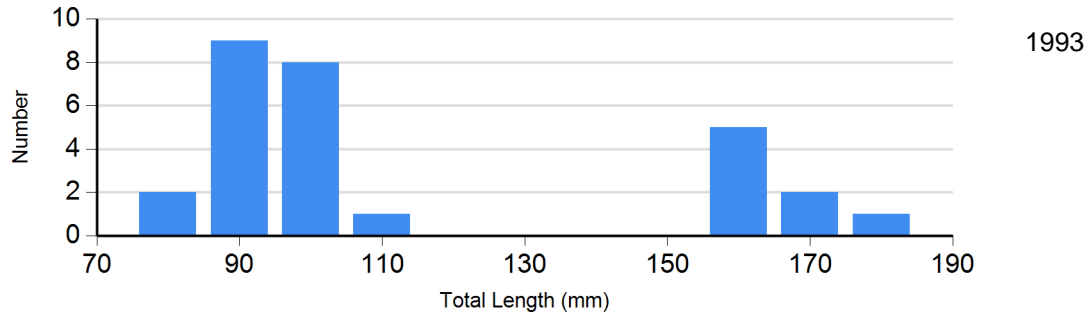
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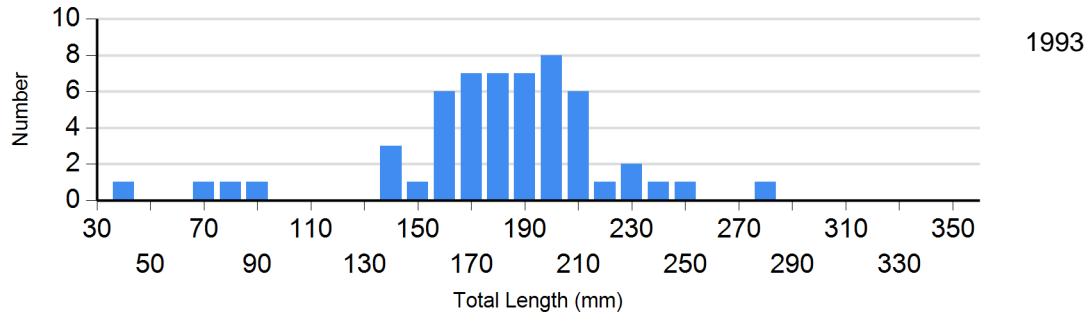
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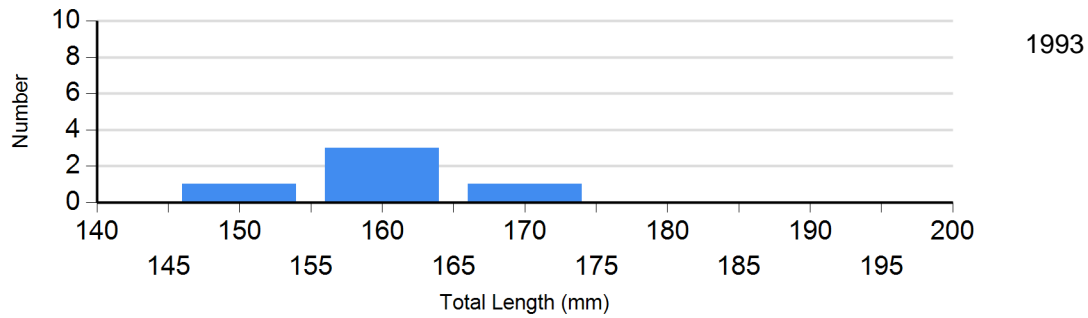
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**Species:** Mountain Sucker



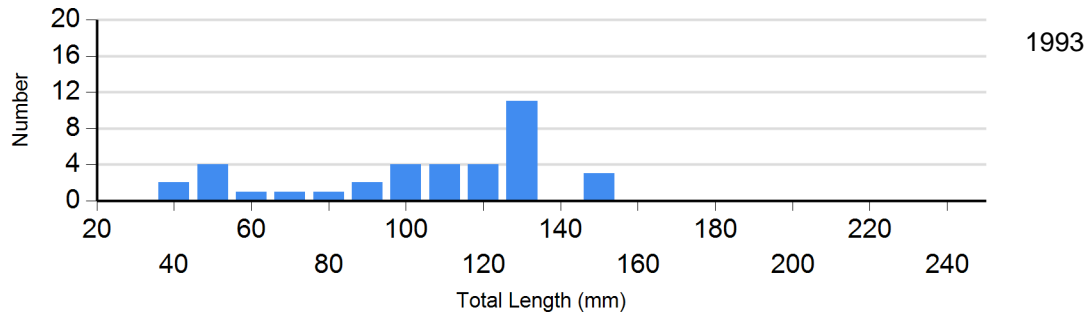
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**Species:** White Sucker



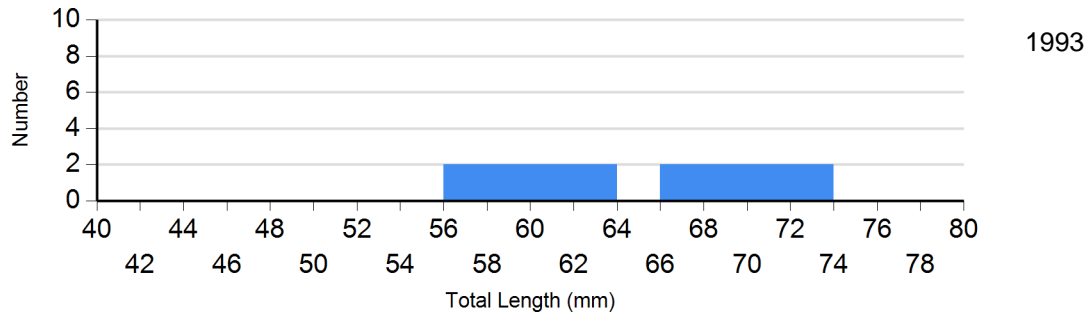
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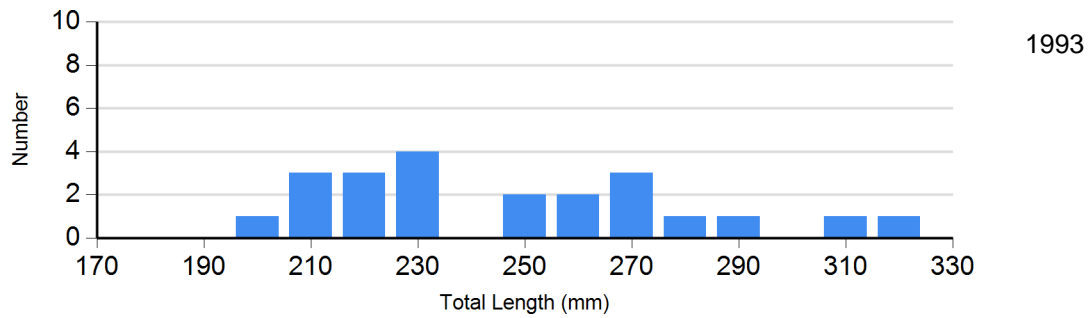
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**Species:** Creek Chub



**Site:** 1062  
**Species:** Fathead Minnow

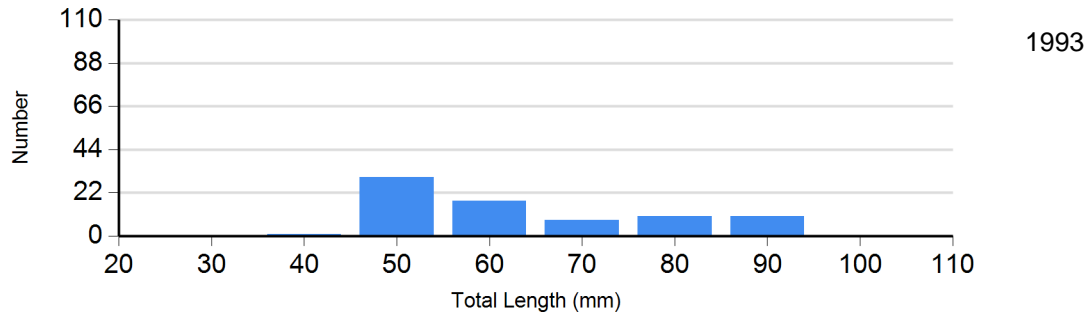


**Site:** 1062  
**Species:** Hatchery Brown Trout

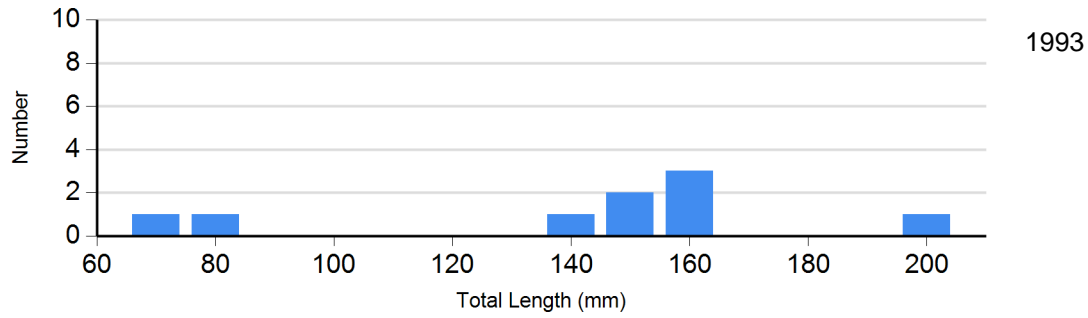




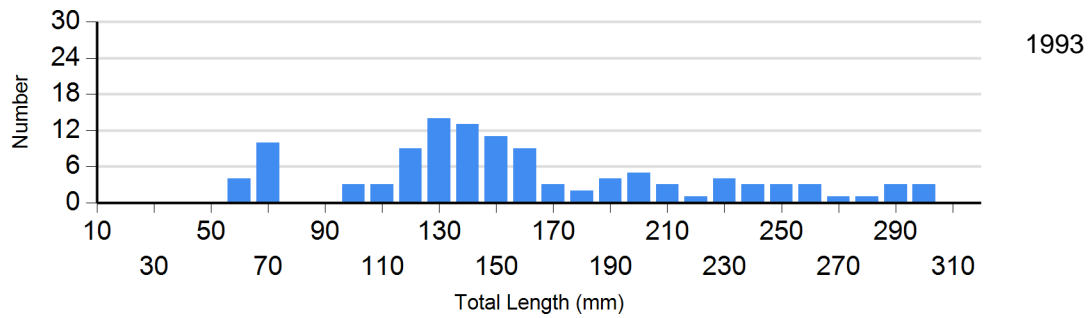
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**Species:** Longnose Dace



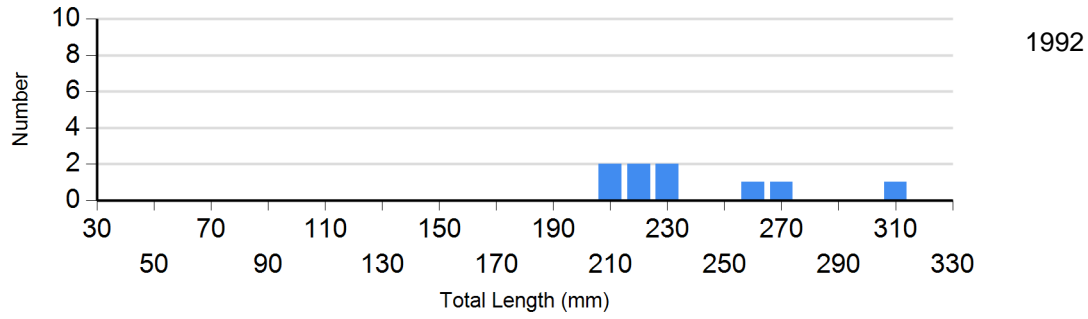
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**Species:** Mountain Sucker



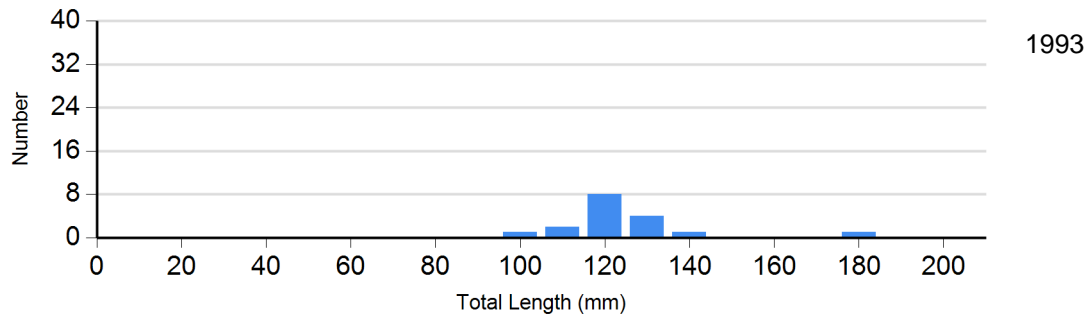
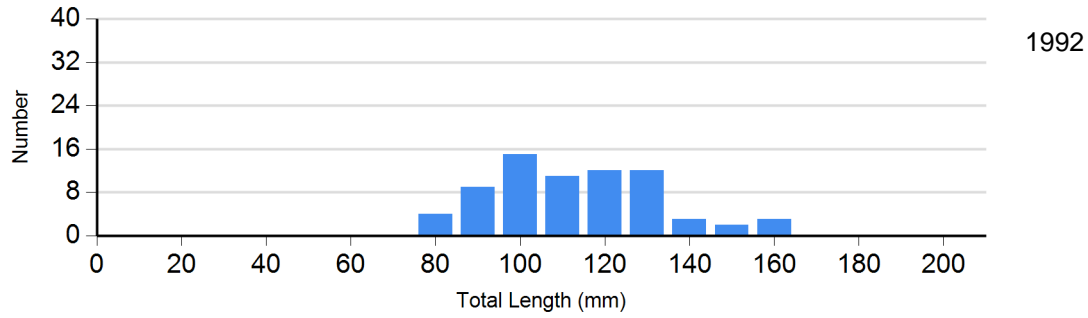
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**Species:** White Sucker



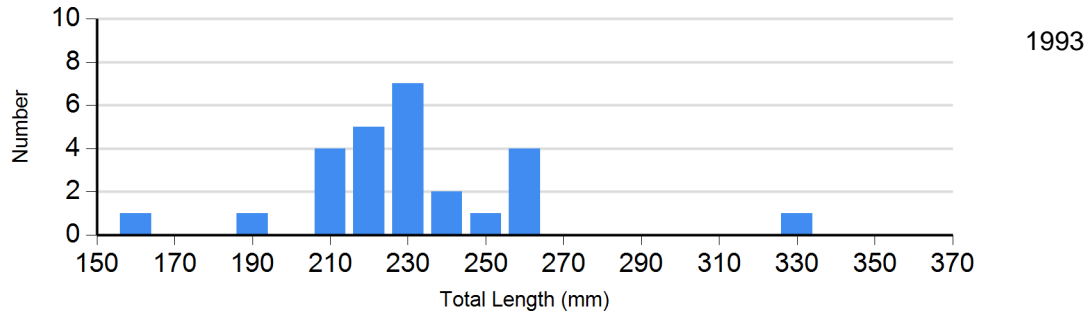
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Species: Brown Trout



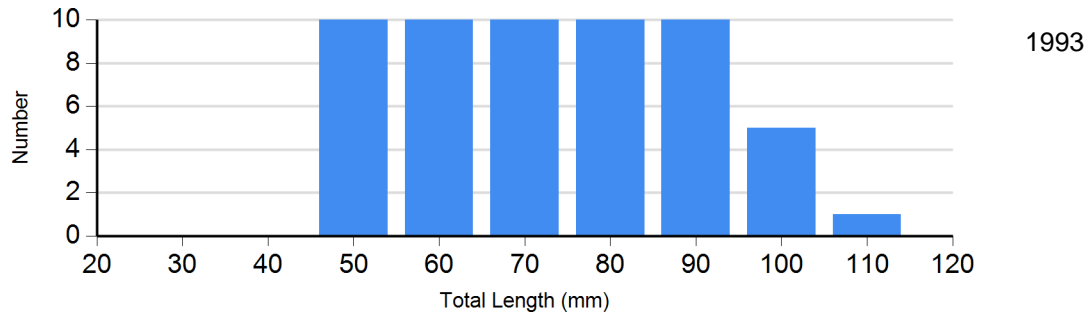
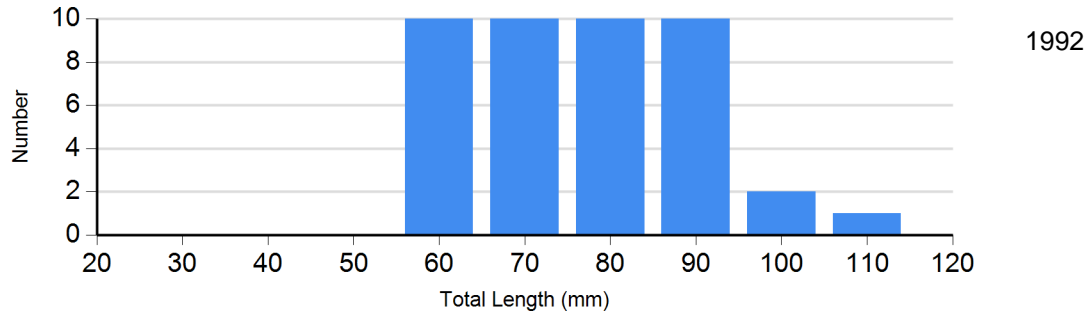
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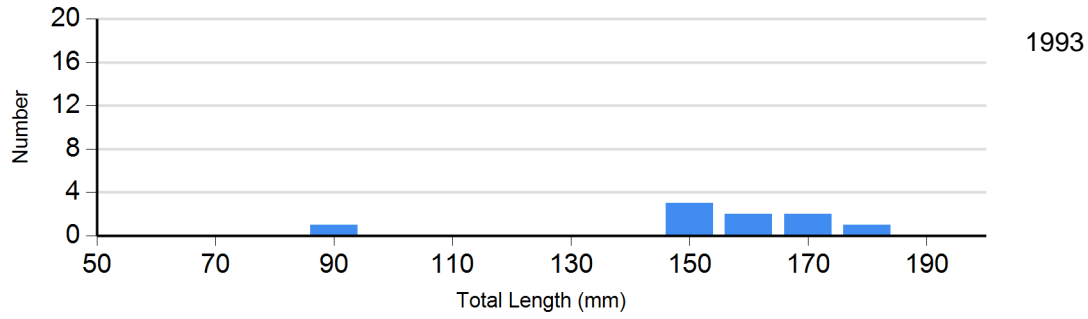
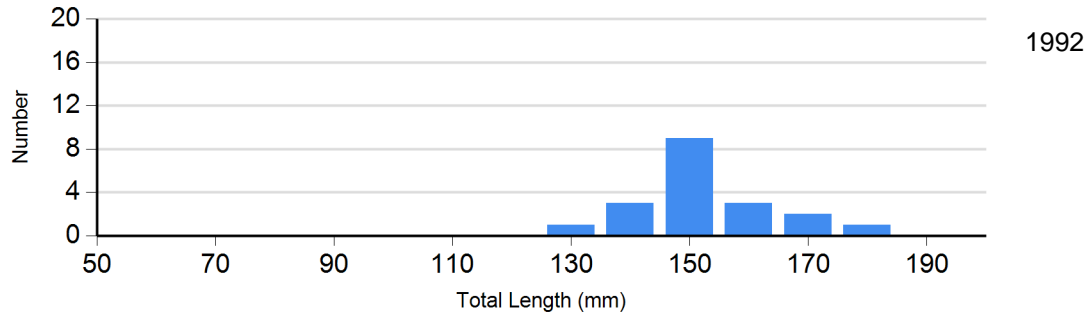
**Site:** 1130  
**Species:** Hatchery Brown Trout



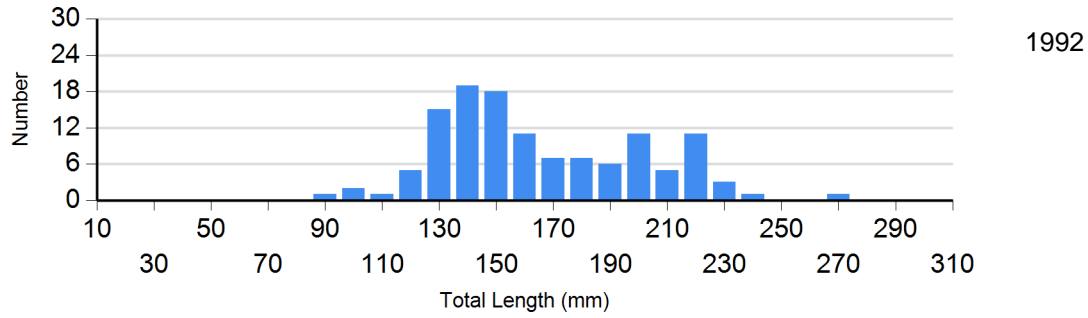
**Site:** 1130  
**Species:** Longnose Dace

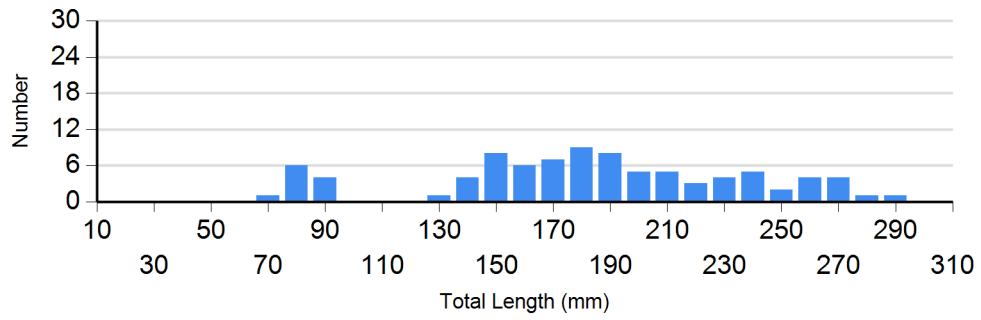


**Site:** 1130  
**Species:** Mountain Sucker

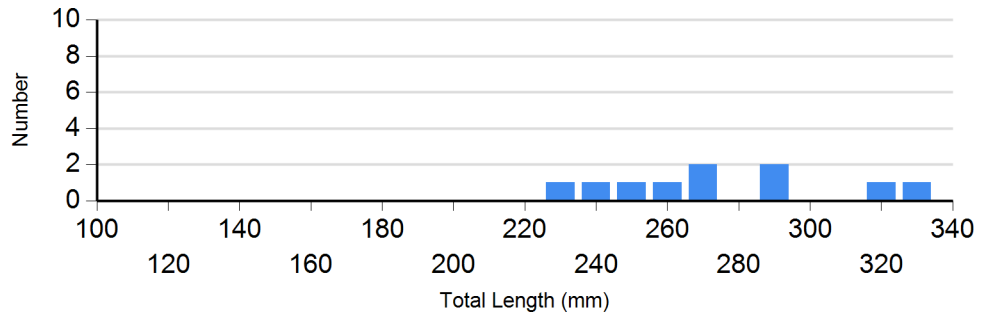


**Site:** 1130  
**Species:** White Sucker

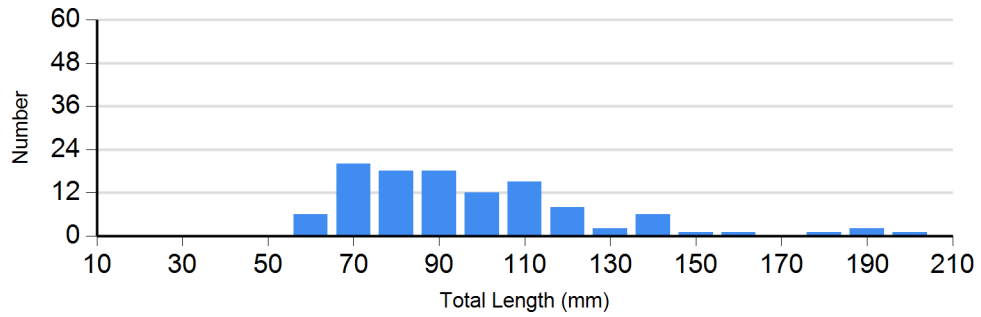


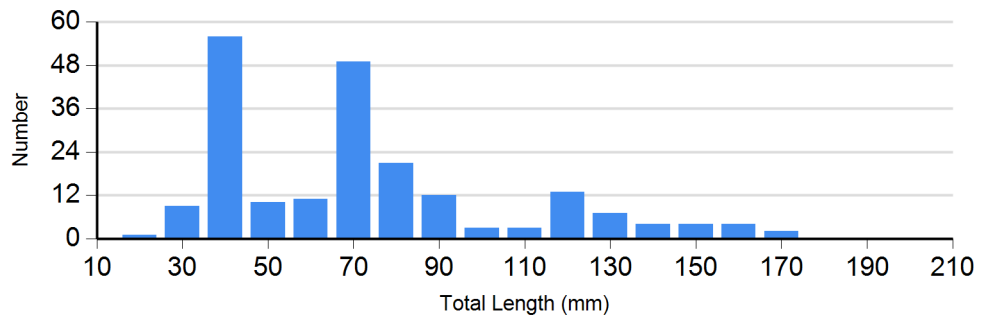


**Site:** 1159  
**Species:** Brown Trout

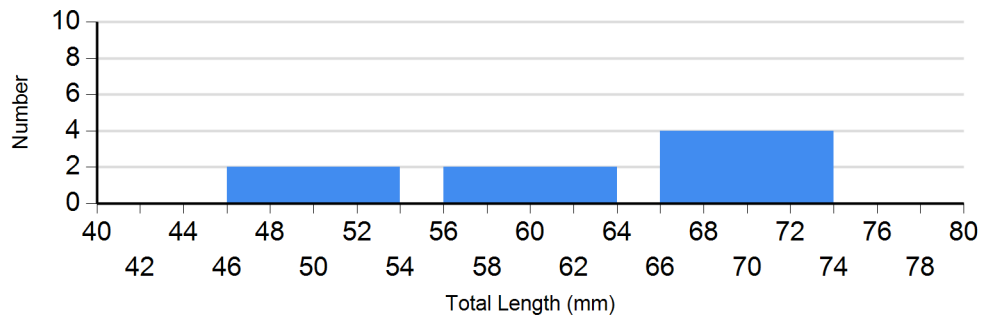


**Site:** 1159  
**Species:** Creek Chub

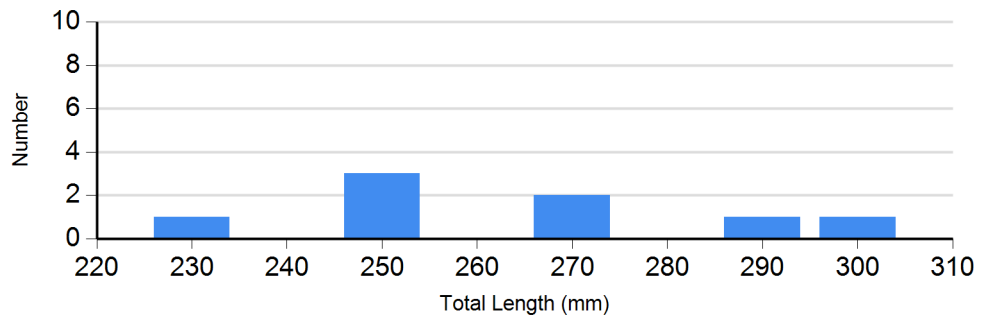




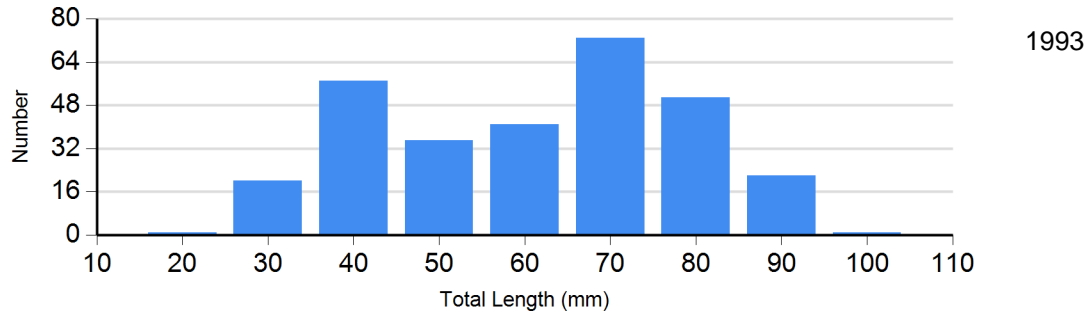
**Site:** 1159  
**Species:** Fathead Minnow



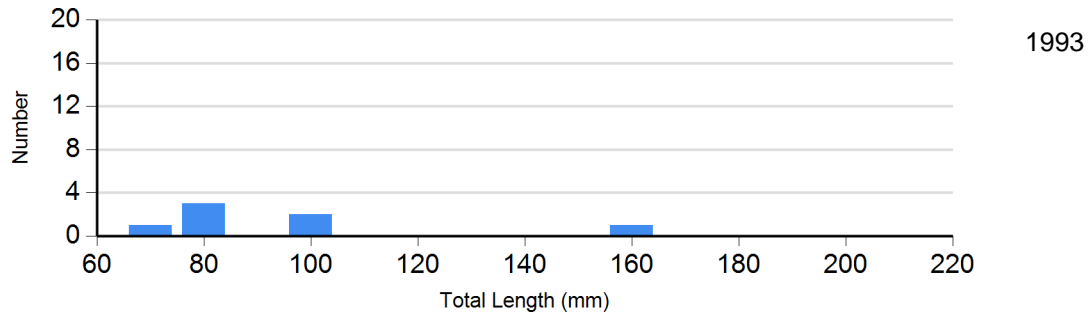
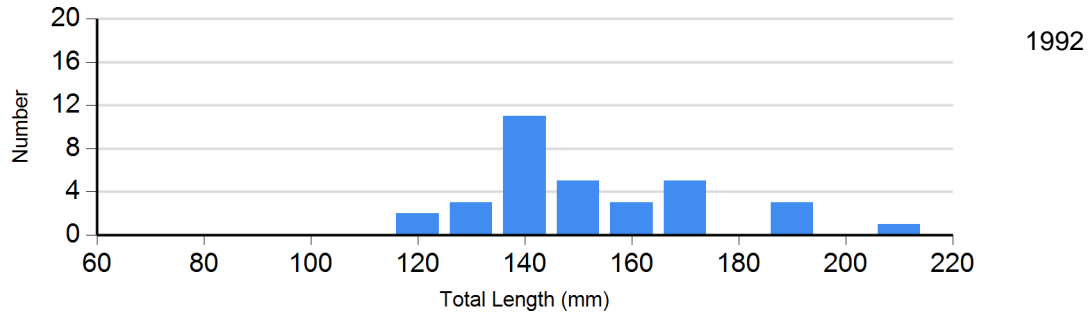
**Site:** 1159  
**Species:** Hatchery Brown Trout



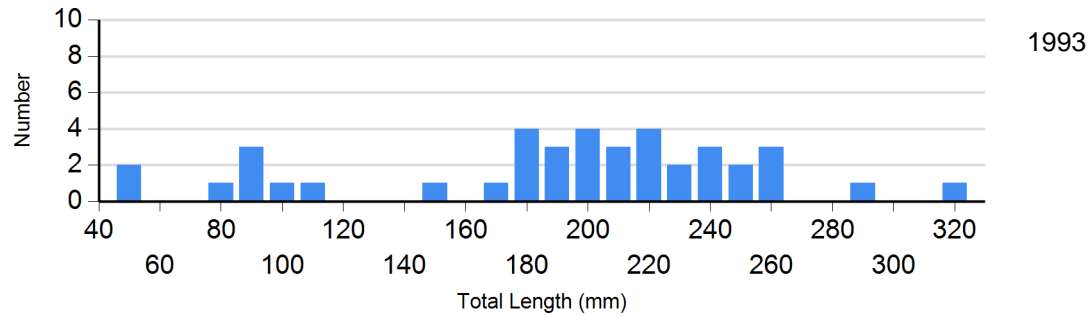
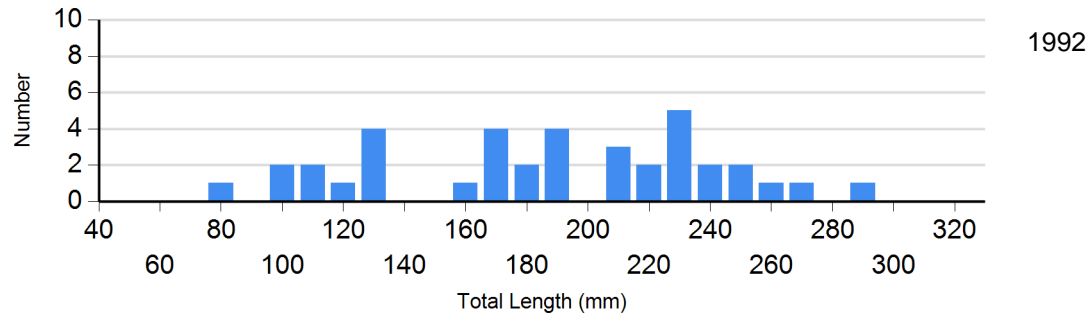
**Site:** 1159  
**Species:** Longnose Dace



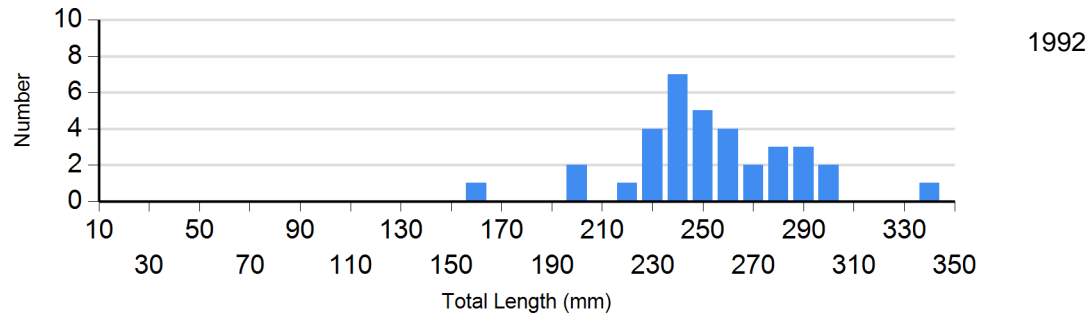
**Site:** 1159  
**Species:** Mountain Sucker



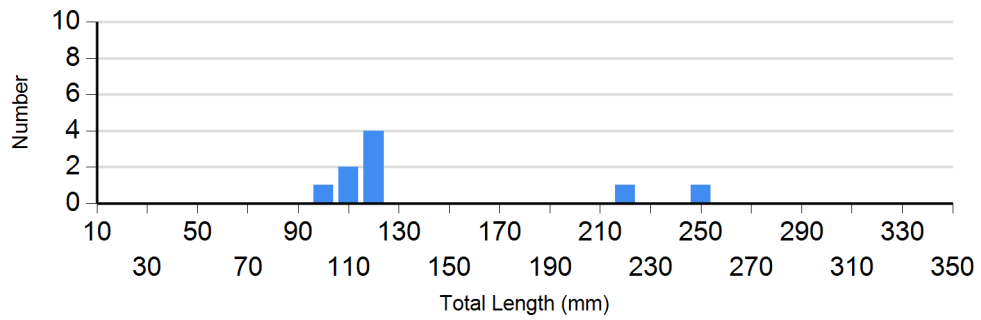
**Site:** 1159  
**Species:** White Sucker



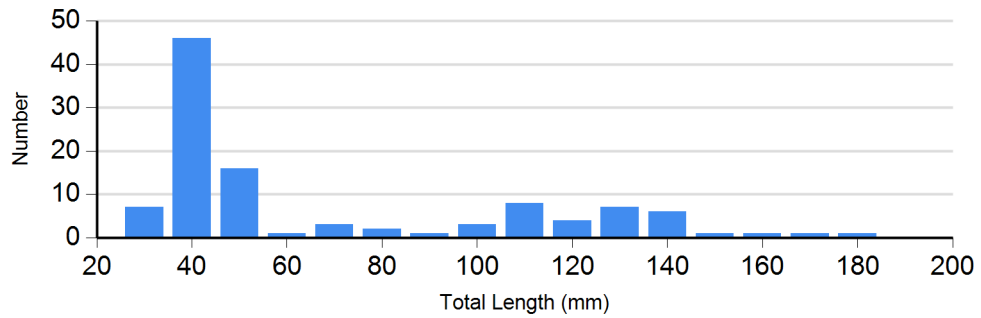
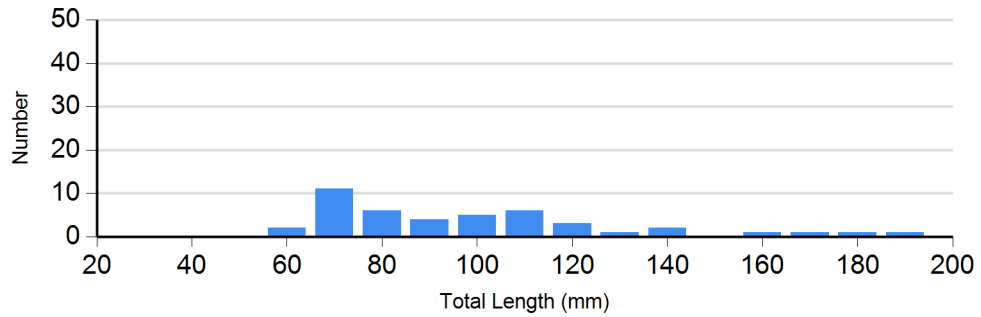
**Site:** 1175  
**Species:** Brown Trout



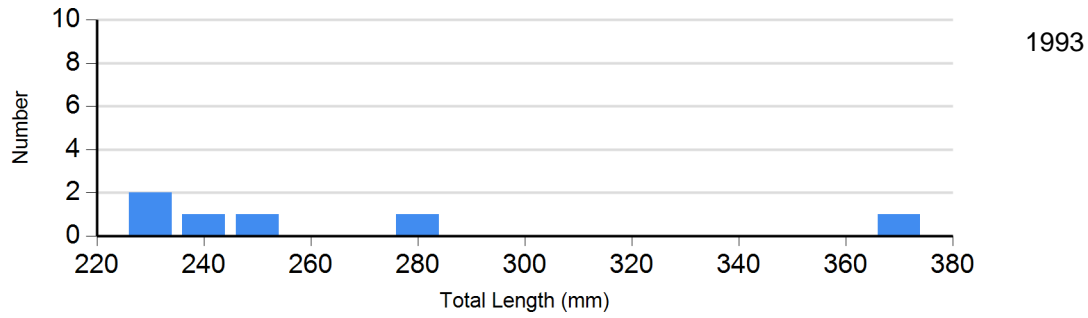




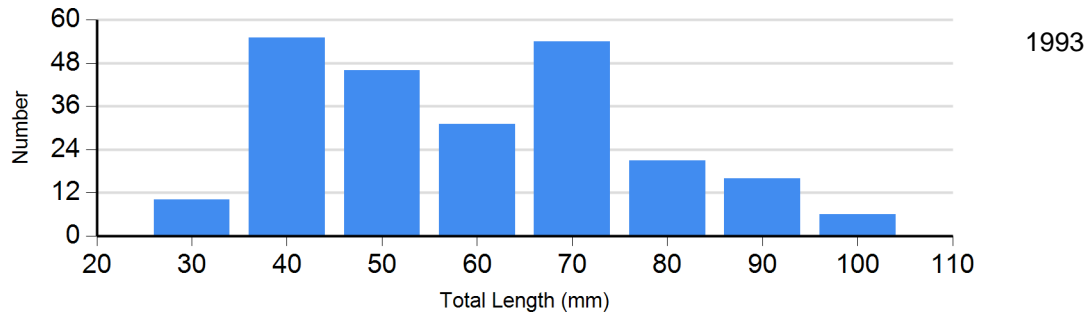
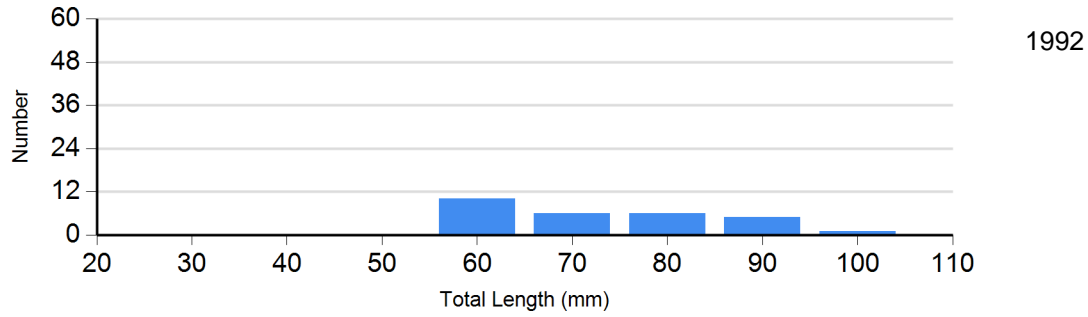
**Site:** 1175  
**Species:** Creek Chub



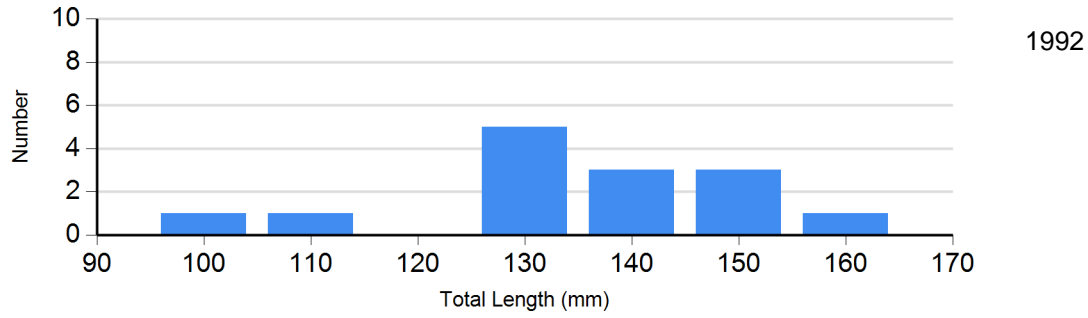
**Site:** 1175  
**Species:** Hatchery Brown Trout



**Site:** 1175  
**Species:** Longnose Dace



**Site: 1175**  
**Species: Mountain Sucker**



**Site: 1175**  
**Species: White Sucker**

