

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Bear Butte Creek, Meade County**  
**49-0023-00**  
**1999**

Table 1. Population and Biomass Estimates for Bear Butte Creek

<b>Site Number:</b> 951	<b>Date Sampled:</b> 09/13/1999	<b>Conductivity (umhos/cm):</b> 114
<b>Site Midpoint (Latitude, Longitude):</b> 44.33467177, -103.62481850	<b>Site Length (m):</b> 95	<b>pH:</b> 8.6
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 4.9	<b>Water Temperature (C):</b> 7.5
<b>Stream Classification:</b> BK0	<b>Number of Pass:</b> 3	<b>Voltage:</b> 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)
Brook Trout	<200mm	2	2	2	2	41	1	21	17	0.71	34	129.0	19.5
Brook Trout	All	2	2	2	2	41	1	21	17	0.71	34	129.0	19.5
Longnose Dace	All	1	1	1	1	20	0	11	8	0.01	17	55.0	0.5
White Sucker	All	7	7	9	7	143	0	74	58	0.09	119	46.1	0.7

<b>Site Number:</b> 955	<b>Date Sampled:</b> 09/15/1999	<b>Conductivity (umhos/cm):</b> 74
<b>Site Midpoint (Latitude, Longitude):</b> 44.33484568, -103.62910289	<b>Site Length (m):</b> 100	<b>pH:</b> 8.7
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 4.1	<b>Water Temperature (C):</b> 5.4
<b>Stream Classification:</b> BK0	<b>Number of Pass:</b> 4	<b>Voltage:</b> 250

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	5	5	5	5	123	3	50	50	2.71	80	134.8	24.8
Brook Trout	All	5	5	5	5	123	3	50	50	2.71	80	134.8	24.8
Mountain Sucker	All	3	3	3	3	74	0	30	30	0.13	48	58.3	2.0
White Sucker	All	4	4	4	4	98	0	40	40	0.09	64	55.5	1.0

**Site Number:** 976  
**Site Midpoint (Latitude, Longitude):** 44.32812906, -103.64456485  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BK3, RB2

**Date Sampled:** 09/13/1999      **Conductivity (umhos/cm):** 1156  
**Site Length (m):** 100      **pH:** 8.8  
**Mean Width (m):** 3.9      **Water Temperature (C):** 11.5  
**Number of Pass:** 3      **Voltage:** 250

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	6	6	6	6	155	3	60	63	2.67	97	122.7	19.3
Brook Trout	>=200mm	1	1	1	1	26	6	10	10	5.73	16	281.0	249.0
Brook Trout	All	7	7	7	7	180	9	70	73	8.40	113	145.3	52.1
Mountain Sucker	All	4	4	5	4	103	0	40	42	0.14	64	56.8	1.5
Rainbow Trout	>=200mm	2	2	3	2	52	41	20	21	36.82	32	393.5	800.0
Rainbow Trout	All	2	2	3	2	52	41	20	21	36.82	32	393.5	800.0
White Sucker	All	7	7	8	7	180	8	70	73	7.34	113	137.7	45.6

**Site Number:** 977  
**Site Midpoint (Latitude, Longitude):** 44.32765077, -103.64555220  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BK0, RB2

**Date Sampled:** 09/14/1999      **Conductivity (umhos/cm):** 1207  
**Site Length (m):** 95      **pH:** 8.7  
**Mean Width (m):** 3.9      **Water Temperature (C):** 5.5  
**Number of Pass:** 3      **Voltage:** 250

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	26	26	28	26	670	14	274	271	12.33	440	123.5	20.6
Brook Trout	All	26	26	28	26	670	14	274	271	12.33	440	123.5	20.6
Longnose Dace	All	253	765	1474	253	19716	119	8053	7985	105.91	12957	61.3	6.0
Rainbow Trout	>=200mm	1	1	1	1	26	19	11	10	16.68	17	376.0	725.0
Rainbow Trout	All	1	1	1	1	26	19	11	10	16.68	17	376.0	725.0

YOY  
Catostomus  
sp. All 12 11 15 12 284 0 116 115 0.25 186 39.0 1.0

**Site Number:** 985

**Date Sampled:** 09/14/1999

**Conductivity (umhos/cm):** 645

**Site Midpoint (Latitude, Longitude):** 44.32564488, -103.65235156

**Site Length (m):** 100

**pH:** 8.8

**Survey Completed by:** South Dakota Game, Fish and Parks

**Mean Width (m):** 3.4

**Water Temperature (C):** 7.9

**Stream Classification:** BK2

**Number of Pass:** 3

**Voltage:** 250

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 Stickleback	All	1	1	1	1	29	0	10	12	0.10	16	75.0	4.0
Brook Trout	<200mm	64	64	66	64	1871	48	640	758	43.02	1030	130.6	25.8
Brook Trout	>=200mm	11	11	11	11	322	42	110	130	37.31	177	220.3	129.9
Brook Trout	All	75	75	77	75	2193	90	750	888	80.33	1207	143.7	41.0
Longnose Dace	All	33	32	46	33	936	9	320	379	7.80	515	45.9	9.3
Mountain Sucker	All	3	3	3	3	88	1	30	36	1.10	48	95.0	14.0
White Sucker	All	4	4	7	4	117	0	40	47	0.26	64	72.3	2.5

**Site Number:** 988

**Date Sampled:** 09/16/1999

**Conductivity (umhos/cm):** 166

**Site Midpoint (Latitude, Longitude):** 44.32359378, -103.65026058

**Site Length (m):** 100

**pH:** 8.8

**Survey Completed by:** South Dakota Game, Fish and Parks

**Mean Width (m):** 3.4

**Water Temperature (C):** 6.5

**Stream Classification:** BK2

**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)
Brook Trout	<200mm	100	104	110	100	3095	40	1040	1254	35.96	1673	104.5	13.0
Brook Trout	>=200mm	3	3	3	3	89	8	30	36	7.17	48	206.3	90.0

Brook Trout	All	103	107	113	103	3185	49	1070	1290	43.37	1722	107.4	15.3
Longnose Dace	All	353	352	377	353	10476	61	3520	4243	54.72	5664	46.3	5.9
White Sucker	All	21	22	26	21	655	11	220	265	9.88	354	105.2	16.9
YOY Catostomus sp.	All	12	12	12	12	357	1	120	145	0.48	193	43.3	1.5

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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 Bear Butte Creek, 1989-1999

**Site 951**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 09, 1992	5	5-6	
	Sep 17, 1998	2	2-3	
	Sep 13, 1999	2	2-2	
Brook Trout >=200mm	Sep 17, 1998	1	1-2	BK3
Longnose Dace	Sep 09, 1992	1	1-1	
	Sep 13, 1999	1	1-1	
Mountain Sucker	Sep 09, 1992	19	18-23	

White Sucker

Sep 13, 1999

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7-9

**Site 955**

<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Trout <200mm	Sep 09, 1992	35	35-37	
	Sep 19, 1995	2	2-3	
	Sep 23, 1996	9	9-10	
	Sep 10, 1997	6	6-7	
	Sep 16, 1998	4	4-4	
	Sep 15, 1999	5	5-5	
Brook Trout >=200mm	Sep 09, 1992	2	2-2	BK3
	Sep 10, 1997	14	14-16	BK2
	Sep 16, 1998	2	2-2	BK3
Longnose Dace	Sep 09, 1992	521	449-593	
	Sep 10, 1997	21	21-22	
Mountain Sucker	Sep 09, 1992	82	77-90	
	Sep 10, 1997	8	8-8	

Mountain Sucker	Sep 16, 1998	5	5-6	
	Sep 15, 1999	3	3-3	
Rainbow Trout >=200mm	Sep 09, 1992	5	5-5	RB1
	Sep 10, 1997	1	1-1	RB2
White Sucker	Sep 09, 1992	10	10-12	
	Sep 23, 1996	9	9-10	
	Sep 10, 1997	7	7-7	
	Sep 15, 1999	4	4-4	

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**Site 976**

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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Trout <200mm	Apr 16, 1993	2	2-2	
	Jun 10, 1993	6	6-7	
	Sep 23, 1996	30	30-31	
	Sep 09, 1997	1	1-1	
	Sep 13, 1999	6	6-6	
Brook Trout >=200mm	Sep 20, 1994	1	1-1	BK3

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Brook Trout >=200mm	Sep 09, 1997	2	2-3	BK3
	Sep 13, 1999	1	1-1	BK3
Longnose Dace	Apr 16, 1993	323	71-1282	
	Jun 10, 1993	79	59-107	
	Sep 18, 1995	74	68-83	
	Sep 09, 1997	106	106-107	
Mountain Sucker	Apr 16, 1993	2	2-4	
	Sep 09, 1997	71	67-78	
	Sep 14, 1998	1	1-3	
	Sep 13, 1999	4	4-5	
Rainbow Trout <200mm	Apr 16, 1993	1	1-3	
	Jun 10, 1993	1	1-1	
Rainbow Trout >=200mm	Jun 10, 1993	2	2-2	RB2
	Sep 13, 1999	2	2-3	RB2
White Sucker	Apr 16, 1993	2	2-5	
	Sep 23, 1996	47	44-53	



White Sucker	Sep 09, 1997	11	11-13
	Sep 14, 1998	1	1-3
	Sep 13, 1999	7	7-8

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**Site 977**

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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Stickleback	Sep 23, 1996	8	4-42	
Brook Trout <200mm	Jun 10, 1993	8	8-8	
	Sep 23, 1996	47	47-49	
	Sep 09, 1997	1	1-2	
	Sep 14, 1999	26	26-28	
Brook Trout >=200mm	Sep 09, 1997	5	5-5	BK2
Longnose Dace	Apr 16, 1993	128	66-239	
	Jun 10, 1993	68	44-111	
	Sep 09, 1997	10	10-11	
	Sep 14, 1999	765	253-1474	
Mountain Sucker	Apr 16, 1993	16	13-26	

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Mountain Sucker	Sep 09, 1997	28	21-45	
Rainbow Trout <200mm	Jun 10, 1993	1	1-1	
Rainbow Trout >=200mm	Jun 10, 1993	2	2-2	RB2
	Sep 20, 1994	1	1-1	RB2
	Sep 23, 1996	2	2-2	RB2
	Sep 14, 1999	1	1-1	RB2
White Sucker	Apr 16, 1993	1	1-1	
	Jun 10, 1993	2	2-4	
	Sep 18, 1995	6	6-8	
	Sep 23, 1996	139	83-218	
	Sep 09, 1997	2	2-4	
YOY Catostomus sp.	Sep 14, 1999	11	12-15	

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**Site 985**


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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Stickleback	Sep 14, 1999	1	1-1	
Brook Trout <200mm	Nov 04, 1997	5	5-5	

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Brook Trout <200mm	Sep 14, 1999	64	64-66	
Brook Trout >=200mm	Sep 08, 1997	1	1-1	BK3
	Nov 04, 1997	2	2-6	BK2
	Sep 14, 1999	11	11-11	BK2
Longnose Dace	Sep 08, 1997	33	32-36	
	Nov 04, 1997	10	11-13	
	Sep 14, 1999	32	33-46	
Mountain Sucker	Sep 08, 1997	87	86-90	
	Nov 04, 1997	257	143-386	
	Sep 14, 1999	3	3-3	
White Sucker	Sep 08, 1997	20	20-21	
	Nov 04, 1997	5	3-24	
	Sep 16, 1998	2	2-2	
	Sep 14, 1999	4	4-7	

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Stickleback	Jun 06, 1995	1	1-3	
	Sep 21, 1996	3	3-5	
Brook Trout <200mm	Sep 10, 1992	14	12-21	
	May 10, 1993	15	15-16	
	Sep 20, 1994	8	8-10	
	Sep 18, 1995	2	2-3	
	Sep 21, 1996	20	20-21	
	Jul 14, 1997	18	18-20	
	Sep 09, 1997	19	19-19	
	Nov 04, 1997	9	9-9	
	Sep 14, 1998	31	24-47	
	Sep 16, 1999	104	100-110	
Brook Trout >=200mm	May 10, 1993	1	1-4	BK3
	Jun 06, 1995	2	2-3	BK3
	Sep 18, 1995	1	1-5	BK3

Brook Trout >=200mm	Jul 14, 1997	1	1-1	BK3
	Nov 04, 1997	6	6-6	BK2
	Sep 14, 1998	2	2-4	BK3
	Sep 16, 1999	3	3-3	BK2
Longnose Dace	May 10, 1993	388	389-420	
	Sep 20, 1994	128	127-131	
	Jun 06, 1995	100	101-113	
	Sep 18, 1995	94	94-94	
	Sep 21, 1996	620	551-689	
	Jul 14, 1997	695	603-787	
	Sep 09, 1997	483	435-531	
	Nov 04, 1997	360	262-458	
	Sep 14, 1998	710	605-815	
	Sep 16, 1999	352	353-377	
Mountain Sucker	Jun 06, 1995	14	6-73	
	Sep 18, 1995	3	3-3	

Mountain Sucker	Jul 14, 1997	15	16-21	
	Sep 09, 1997	146	125-167	
	Nov 04, 1997	12	12-14	
	Sep 14, 1998	43	39-51	
Rainbow Trout <200mm	Sep 10, 1992	2	2-2	
	May 10, 1993	1	1-1	
Rainbow Trout >=200mm	May 10, 1993	1	1-1	RB2
White Sucker	Sep 10, 1992	1	1-1	
	May 10, 1993	48	28-97	
	Sep 20, 1994	26	26-27	
	Jun 06, 1995	28	15-76	
	Sep 18, 1995	11	11-13	
	Sep 21, 1996	70	66-77	
	Jul 14, 1997	13	12-18	
	Sep 09, 1997	13	13-13	
	Nov 04, 1997	81	72-93	

White Sucker	Sep 14, 1998	31	23-50
	Sep 16, 1999	22	21-26
YOY Catostomus sp.	Sep 16, 1999	12	12-12

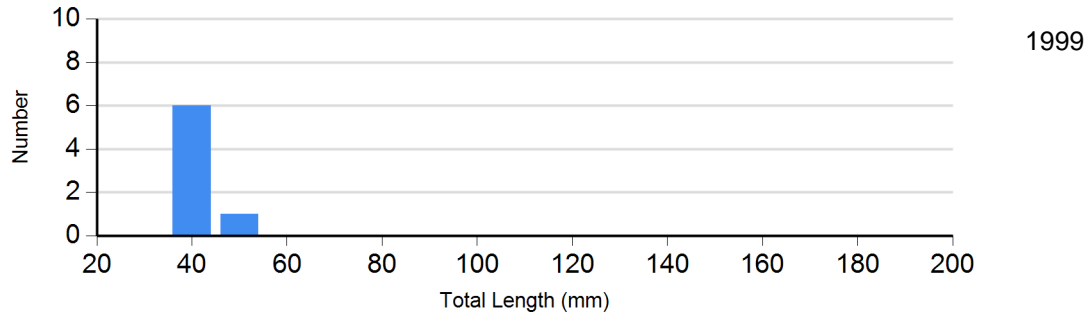
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## Length Frequency Distribution

Length frequency histogram of species sampled by year.

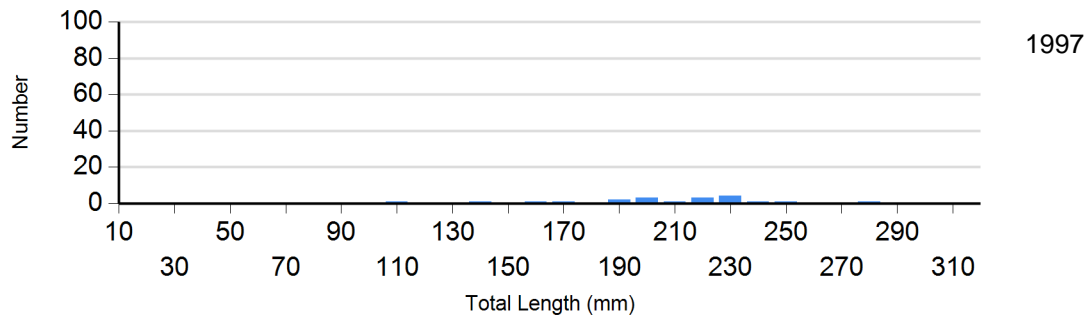
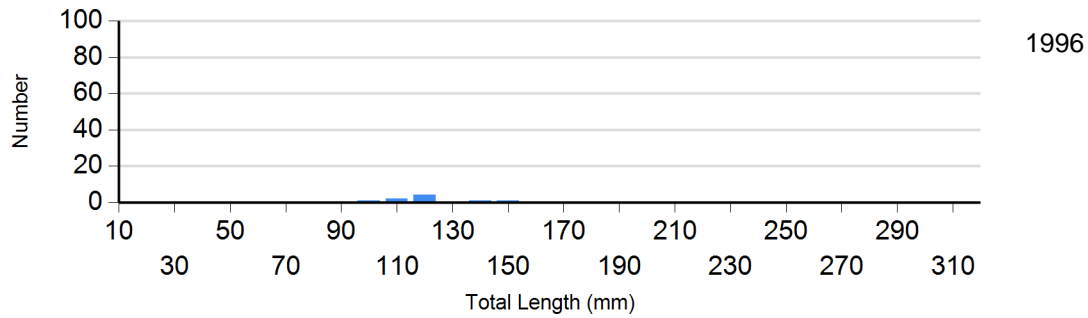
**Site:** 951

**Species:** White Sucker

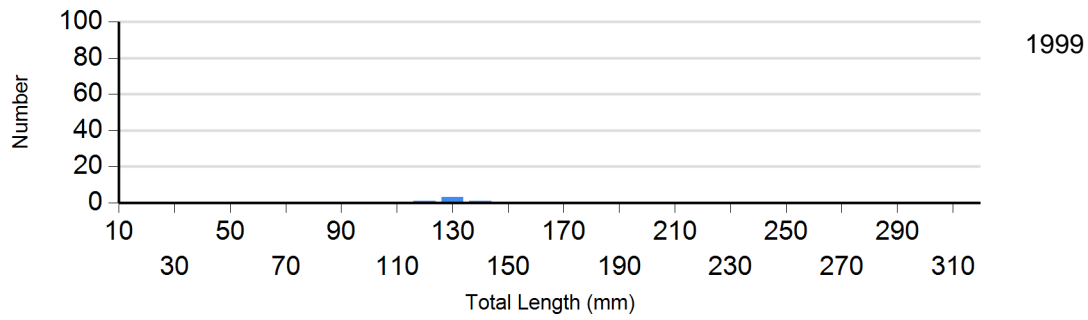
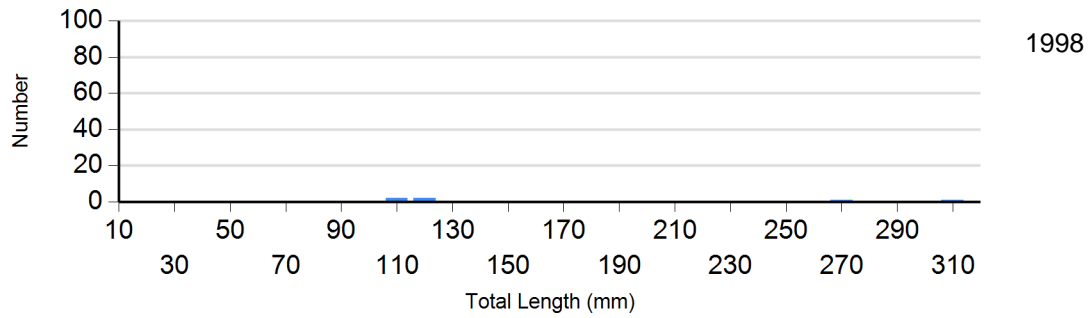


**Site:** 955

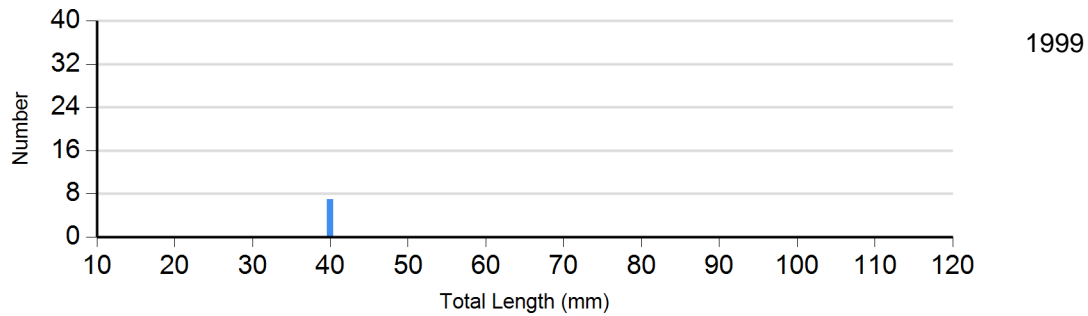
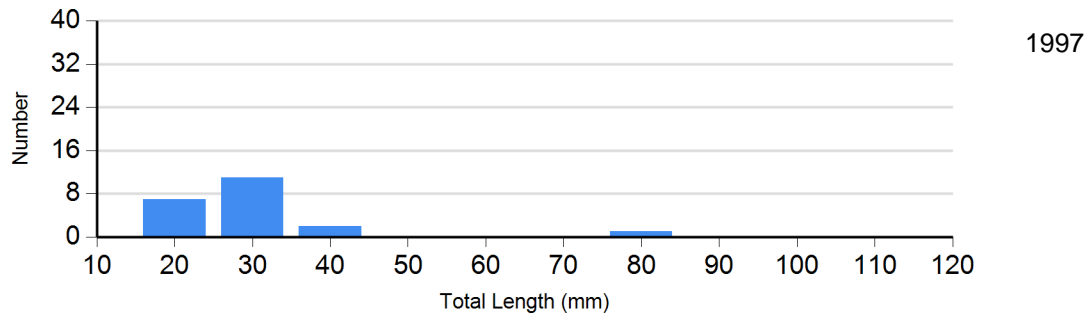
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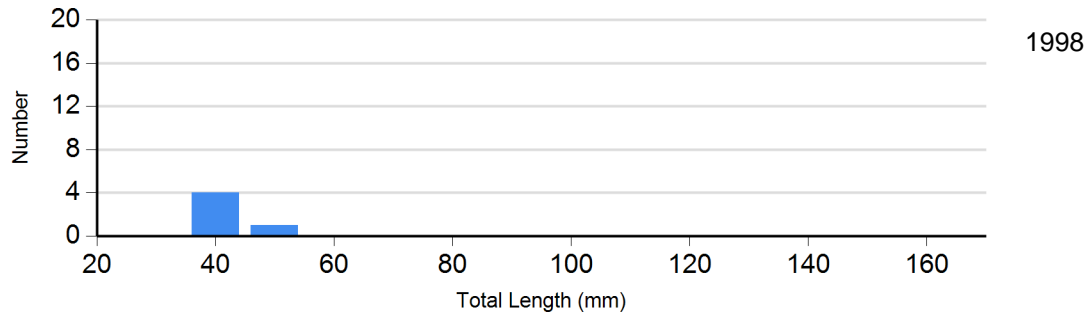
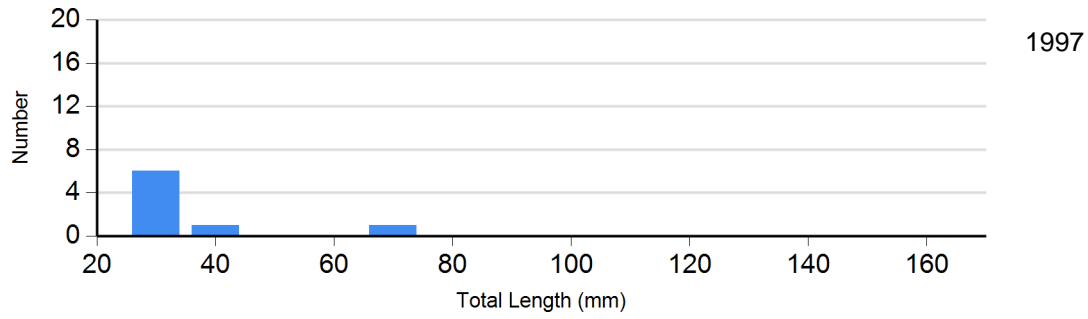




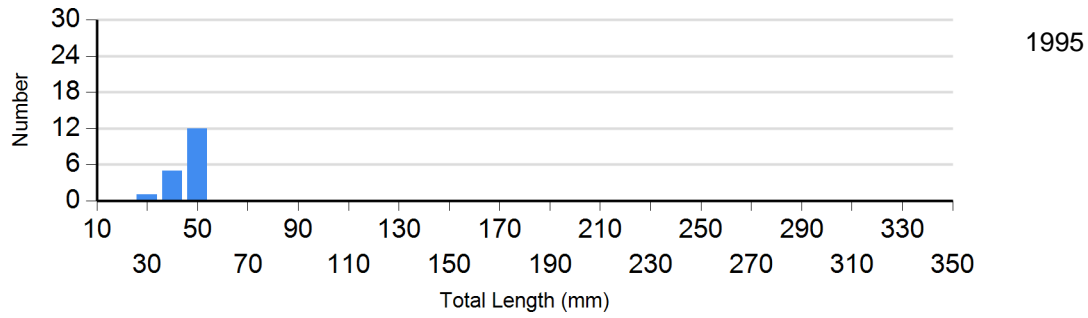
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**Species:** Longnose Dace

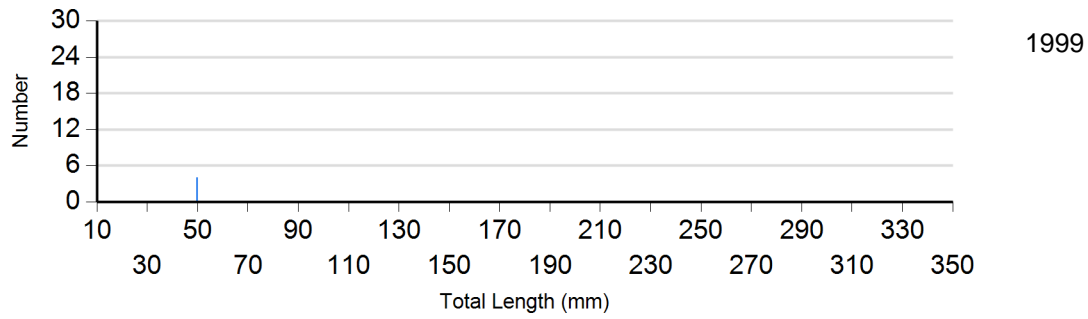
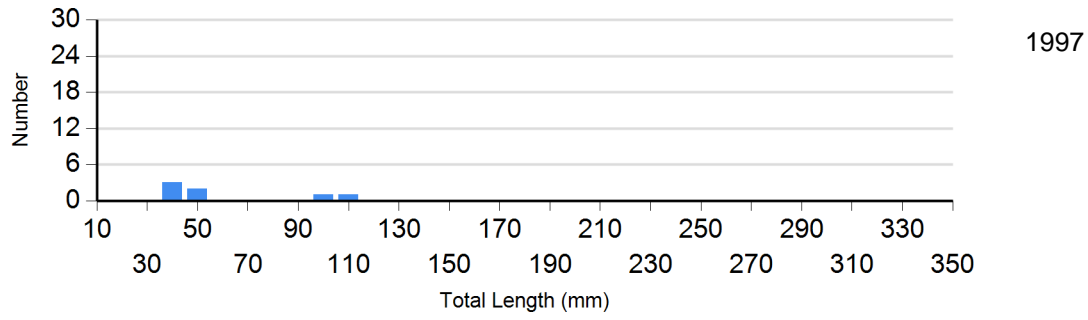
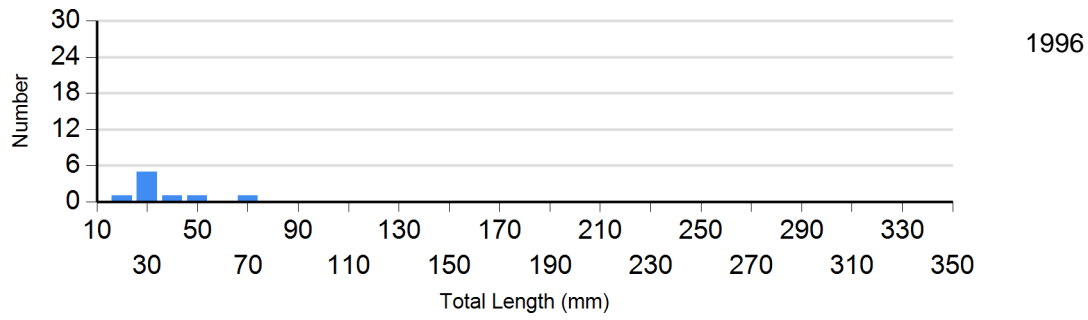


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**Species:** Mountain Sucker

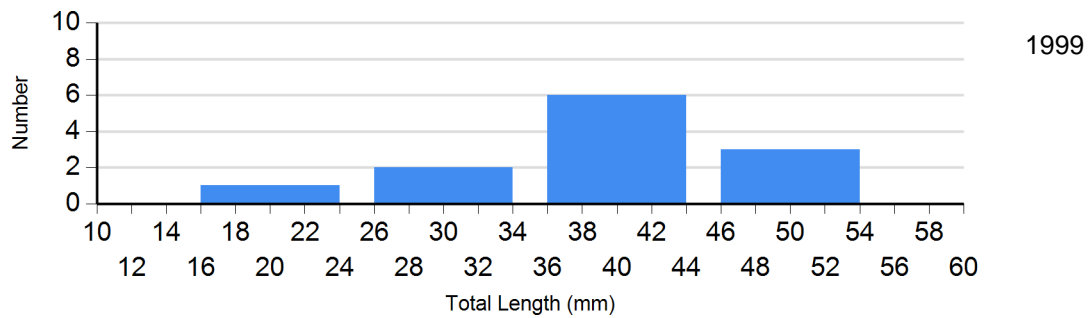


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**Species:** White Sucker

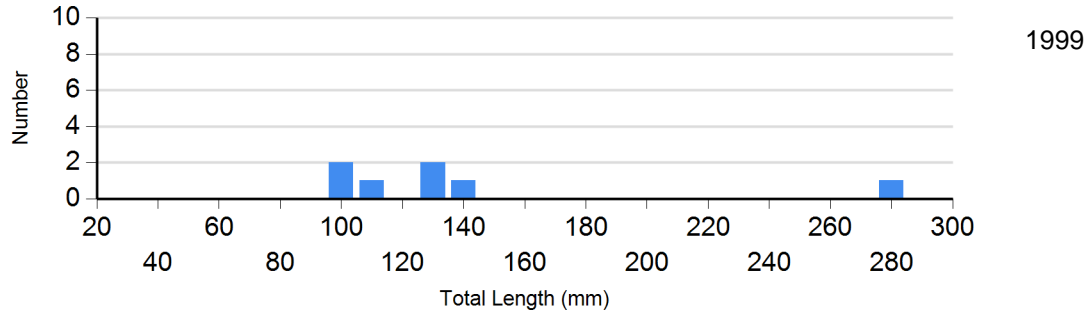
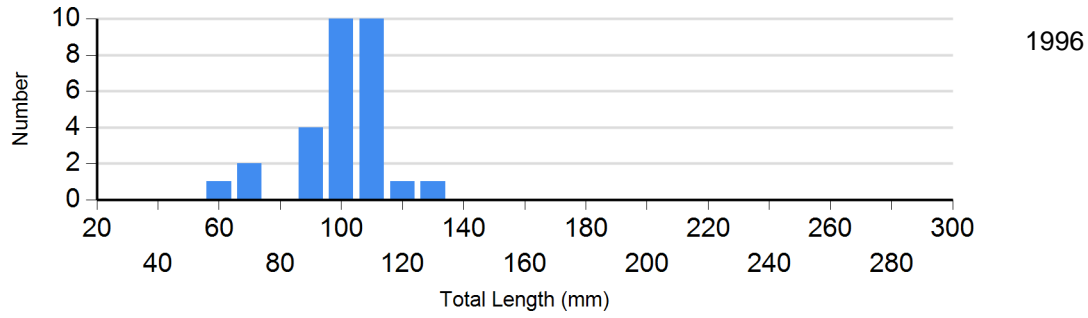




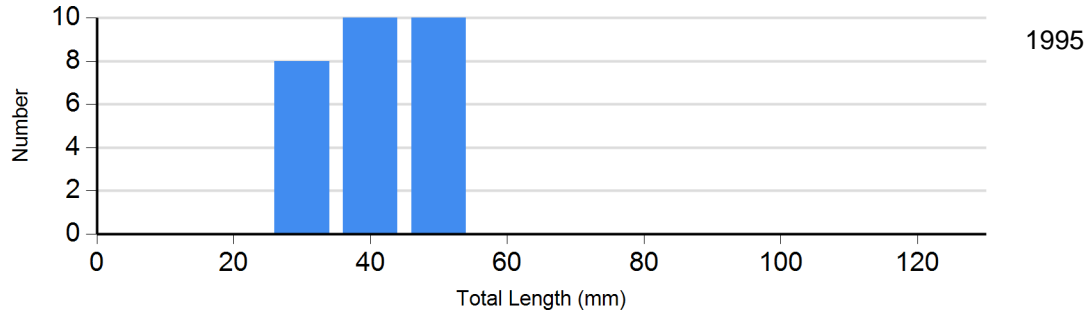
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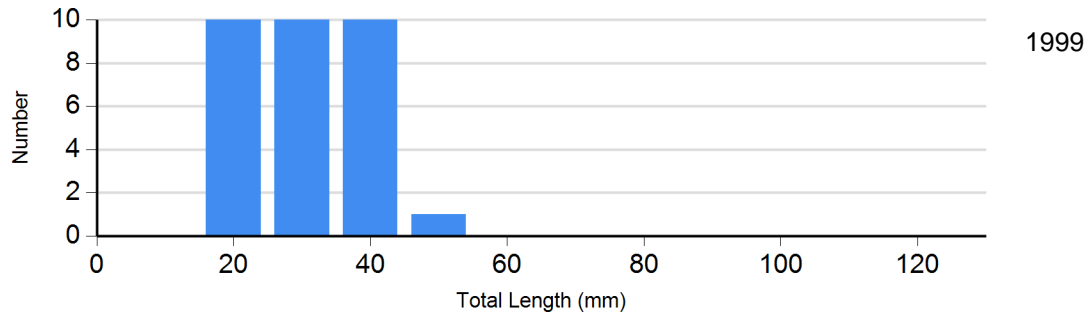
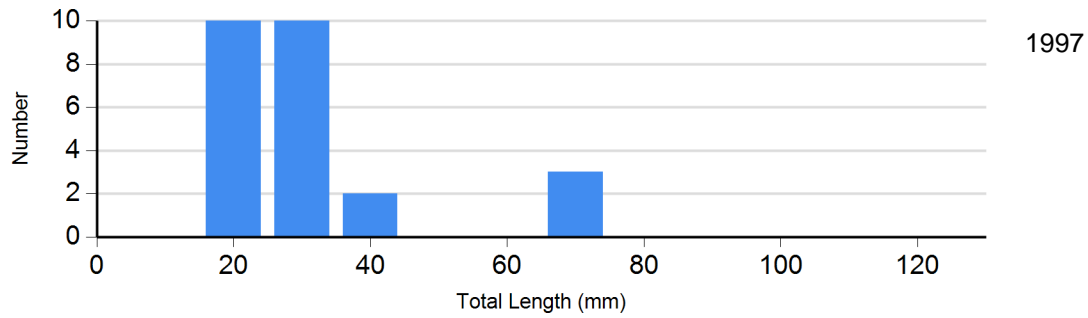


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**Species: Brook Trout**

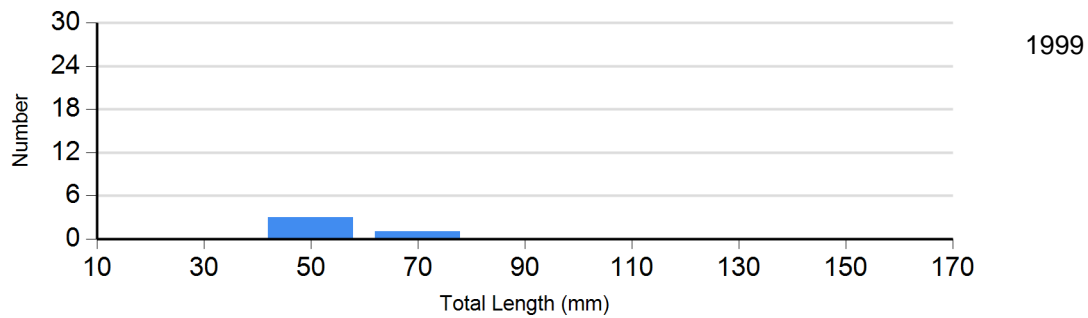
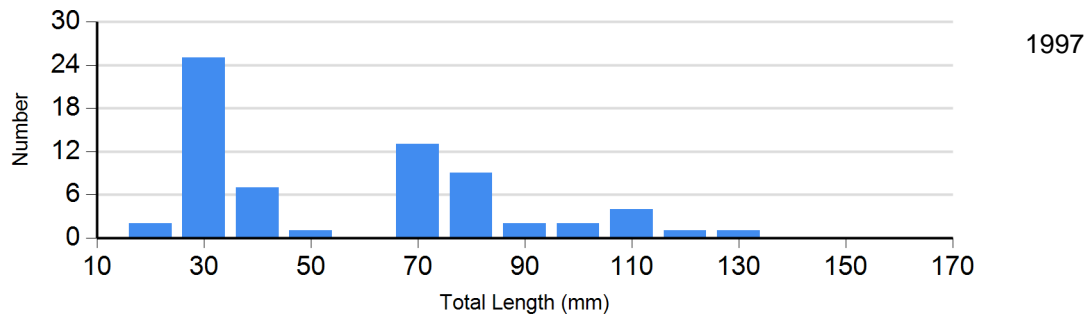


**Site: 976**  
**Species: Longnose Dace**

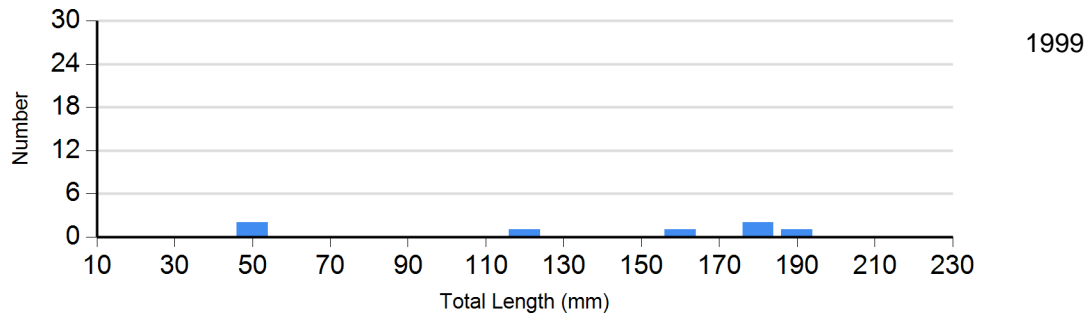
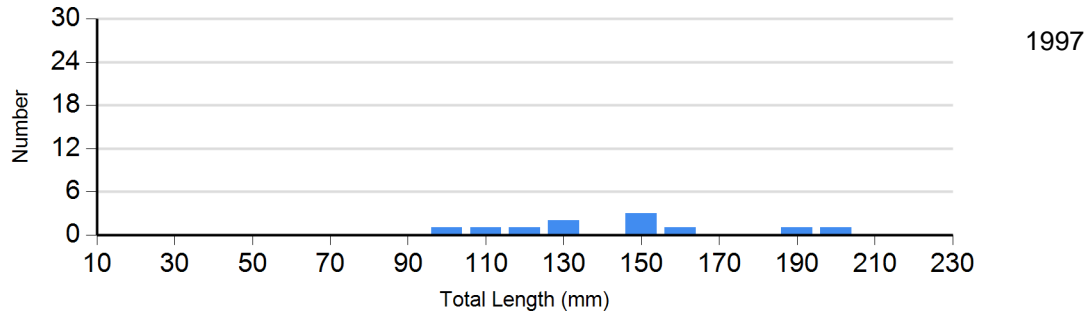
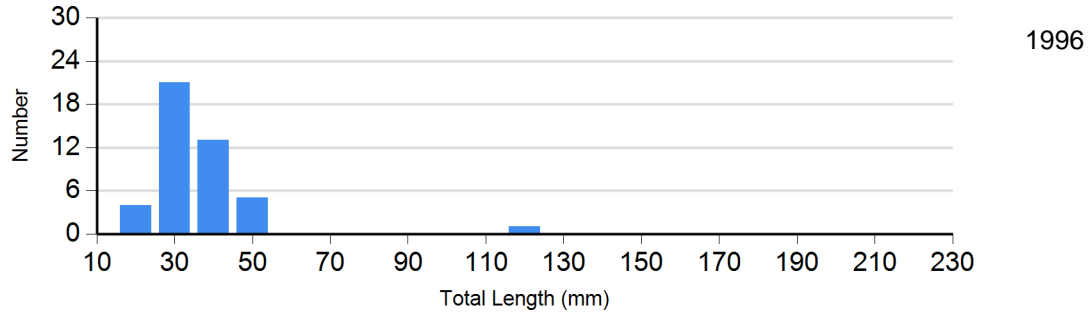
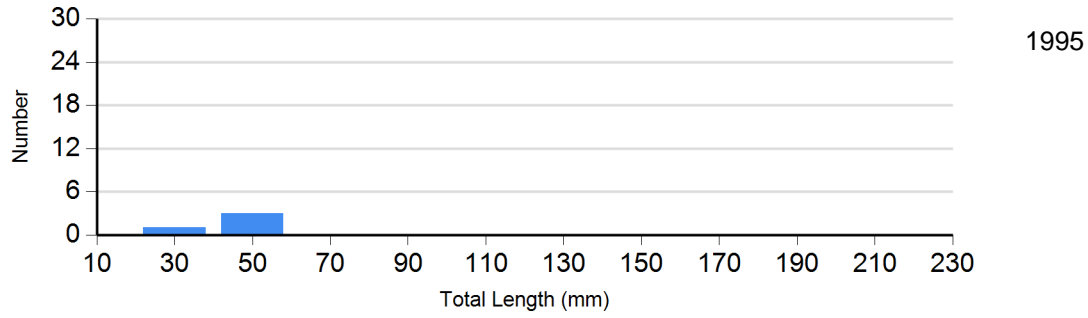




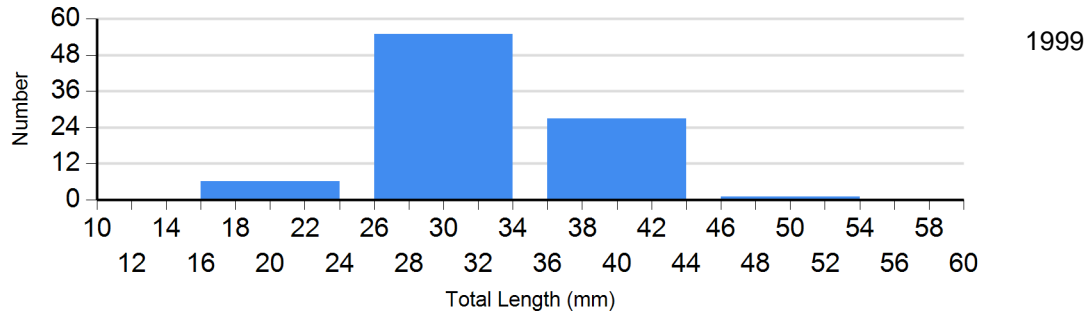
**Site:** 976  
**Species:** Mountain Sucker



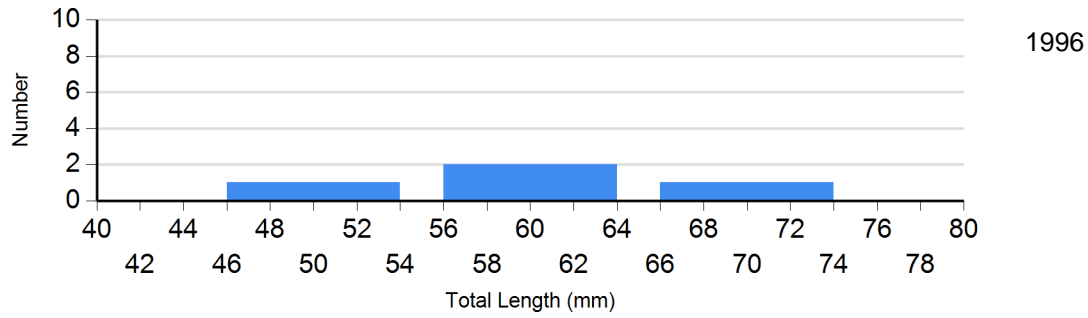
Site: 976  
Species: White Sucker



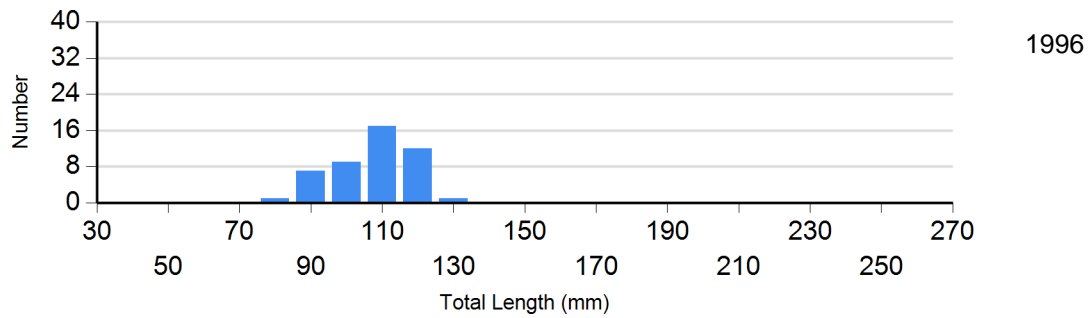
**Site:** 976  
**Species:** YOY Catostomus sp.

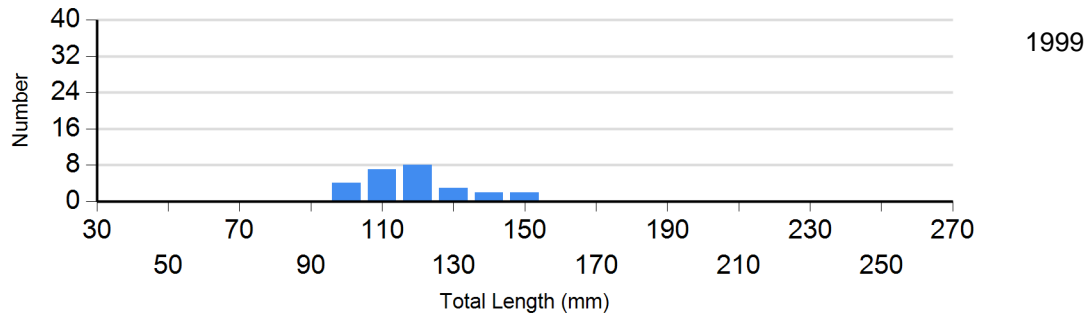
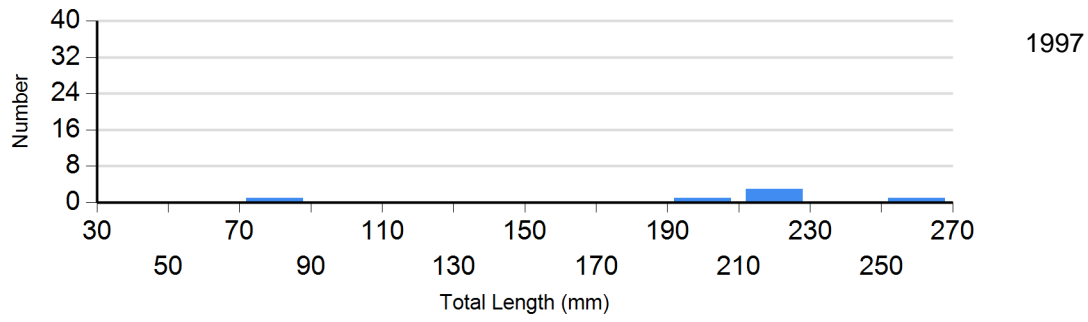


**Site:** 977  
**Species:** Brook Stickleback

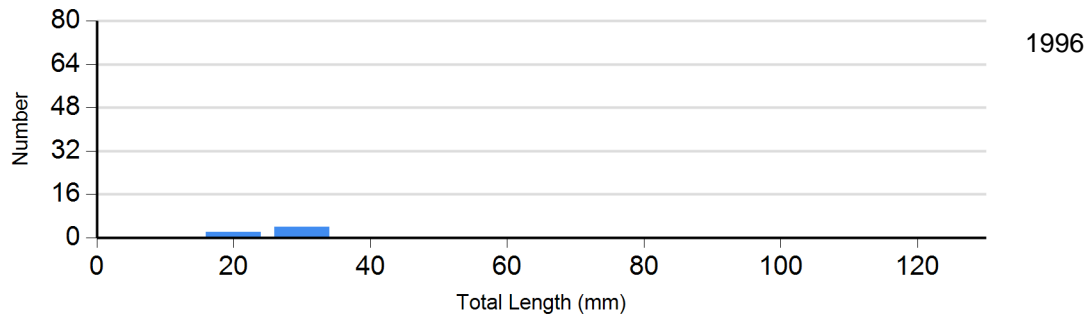
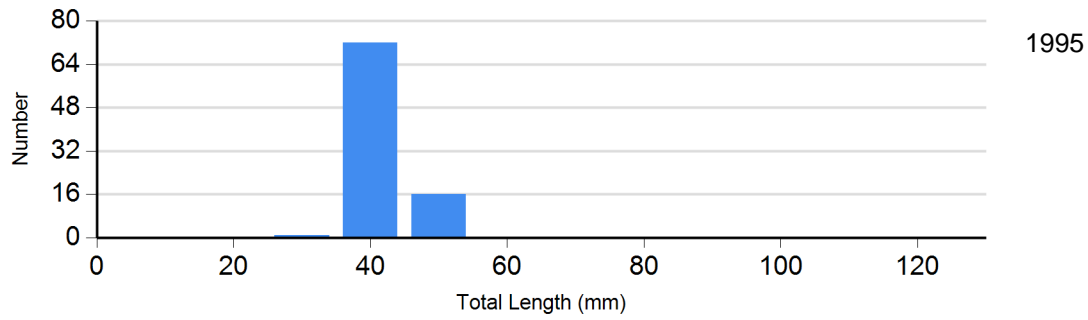


**Site:** 977  
**Species:** Brook Trout

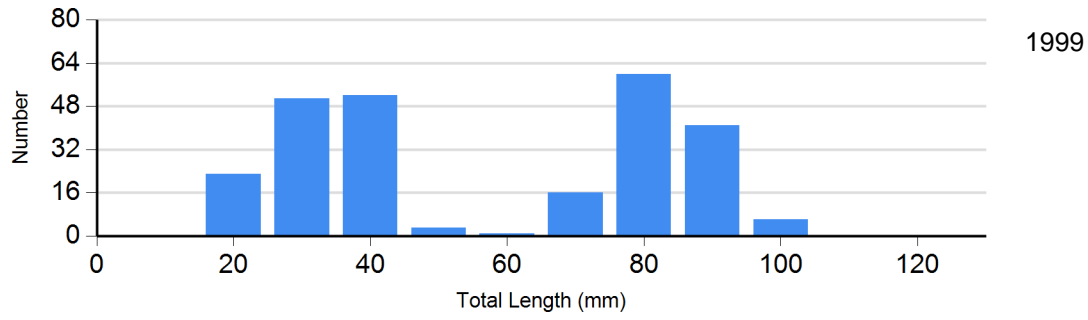
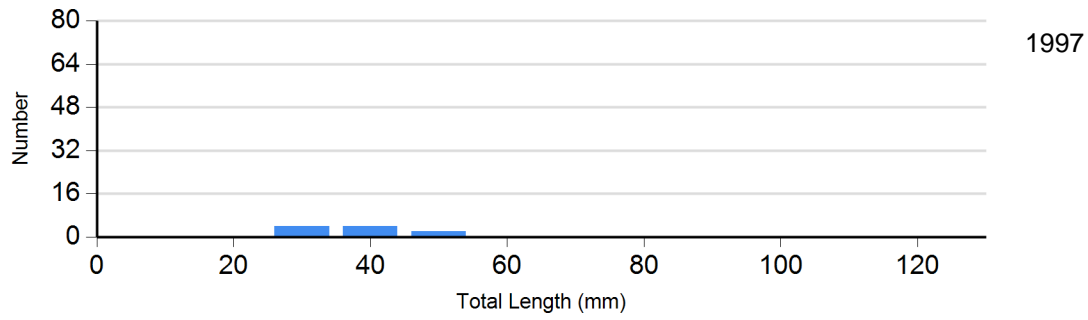




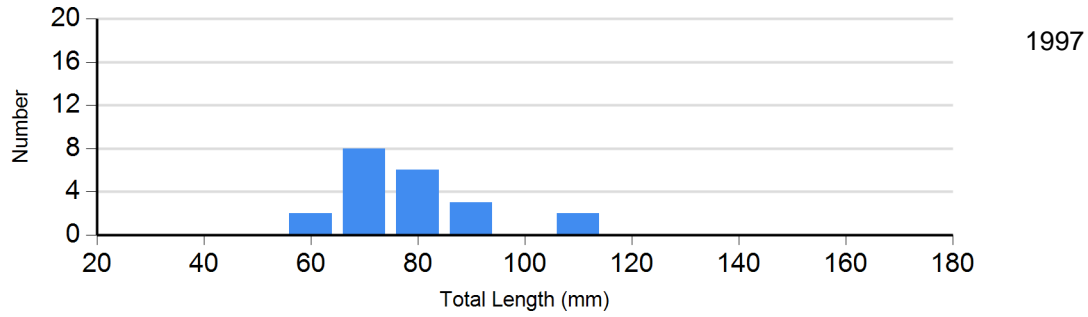
**Site:** 977  
**Species:** Longnose Dace



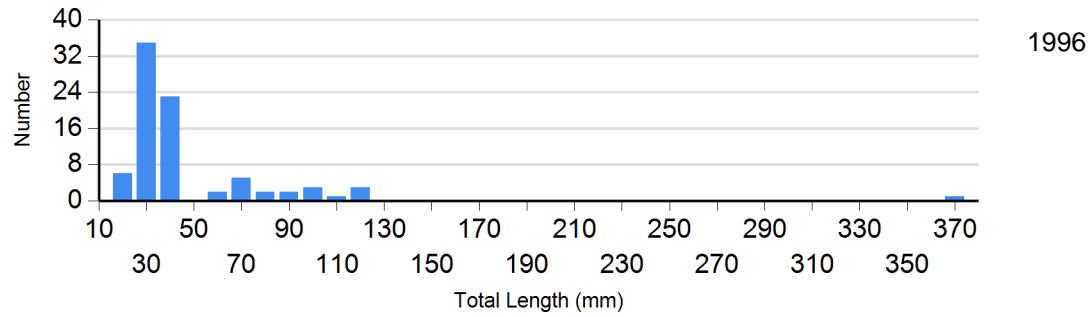
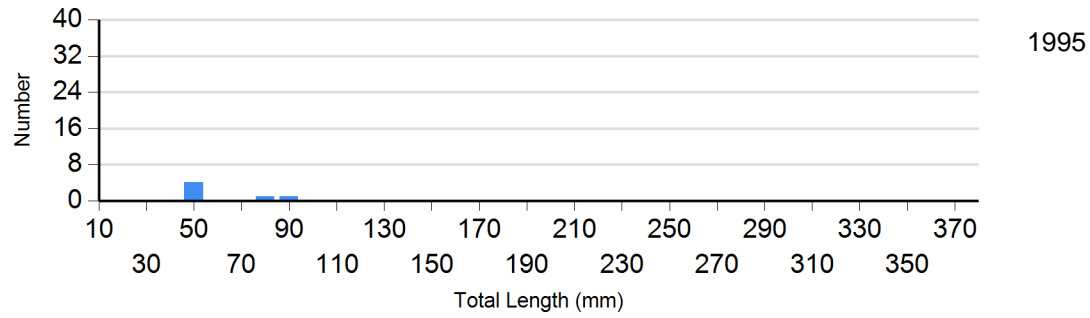




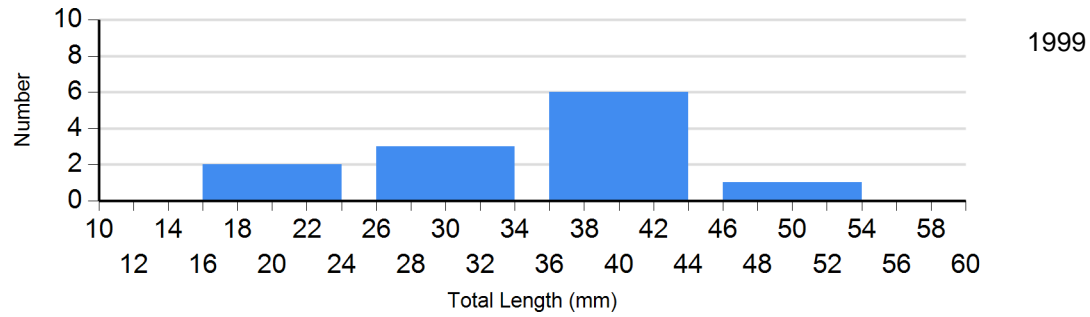
**Site:** 977  
**Species:** Mountain Sucker



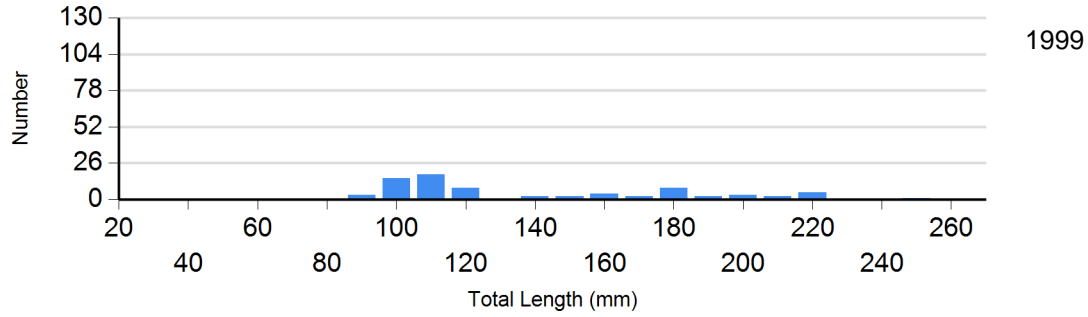
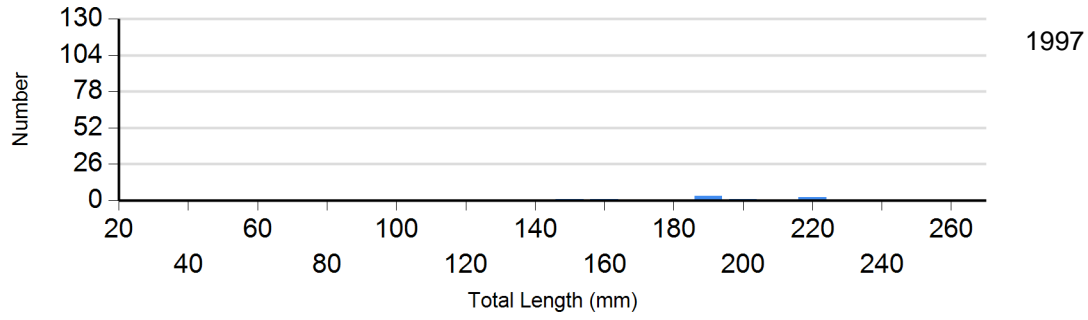
Site: 977  
Species: White Sucker



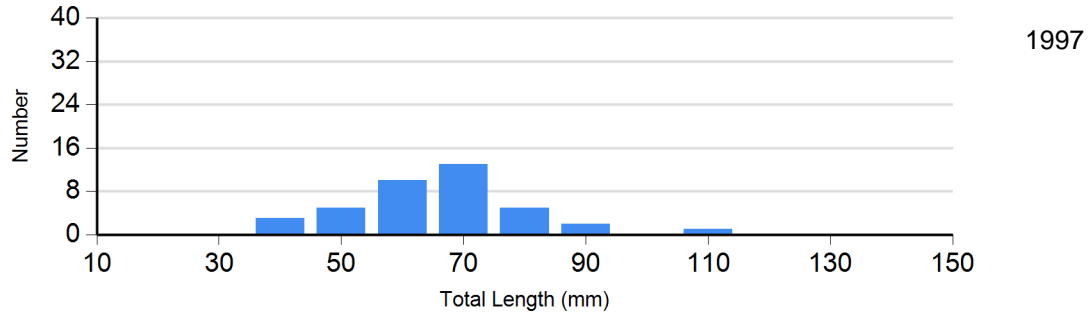
Site: 977  
Species: YOY Catostomus sp.

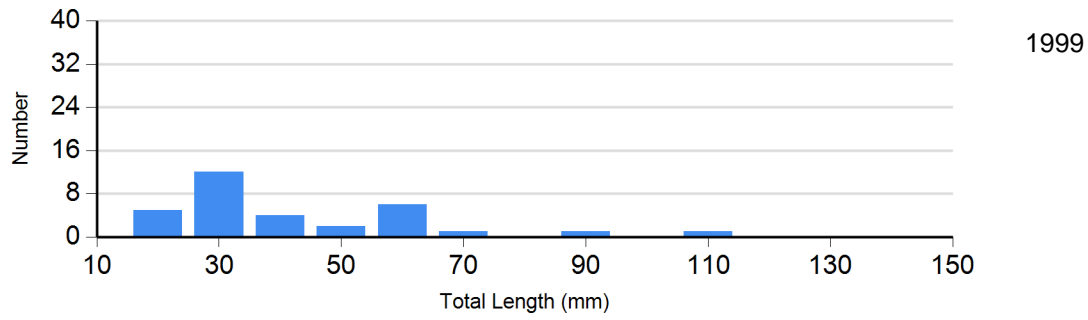


**Site: 985**  
**Species: Brook Trout**

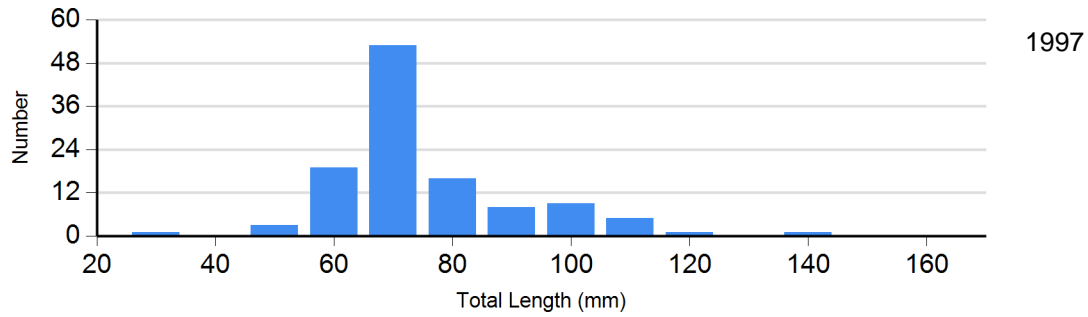


**Site: 985**  
**Species: Longnose Dace**

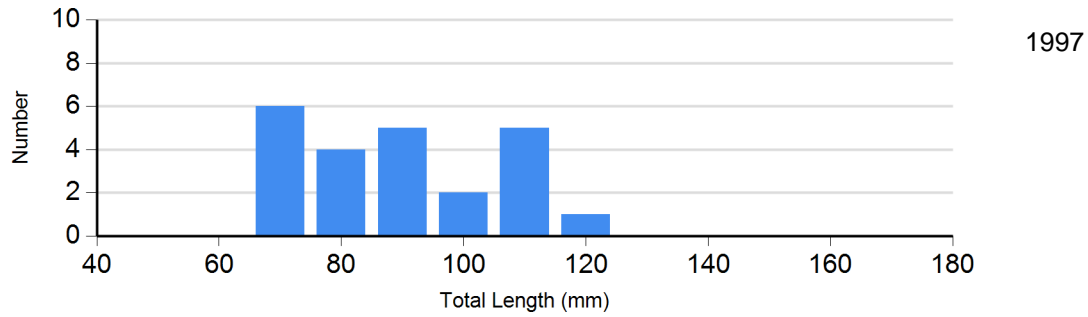


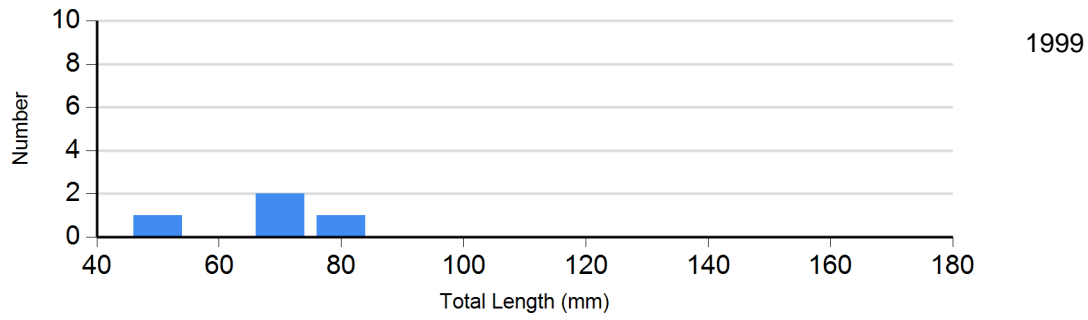


**Site:** 985  
**Species:** Mountain Sucker

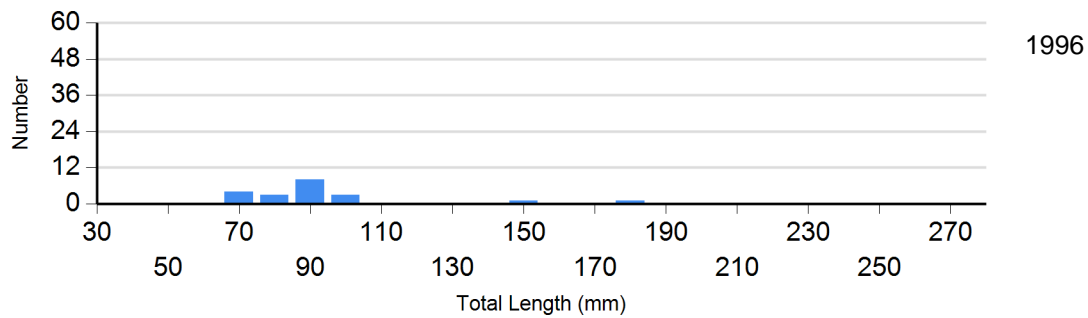
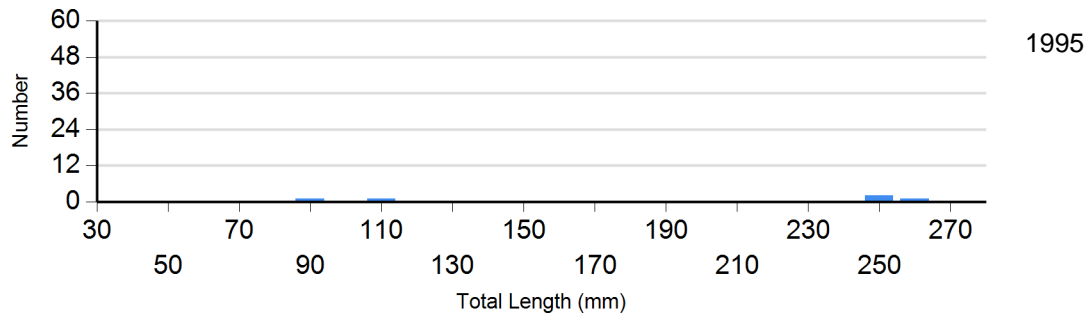
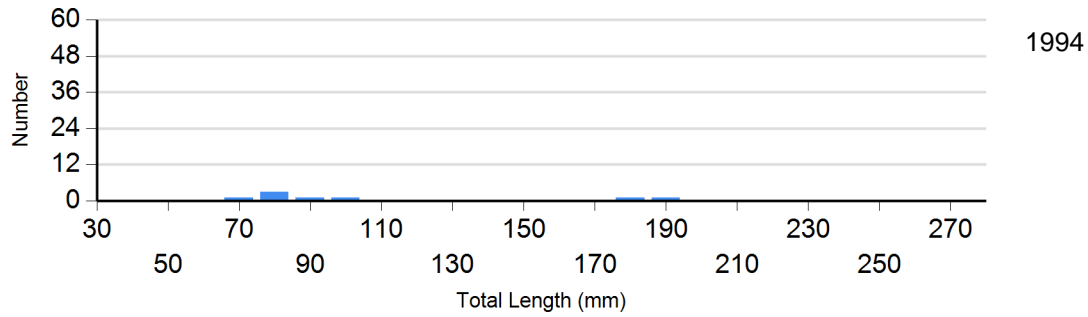


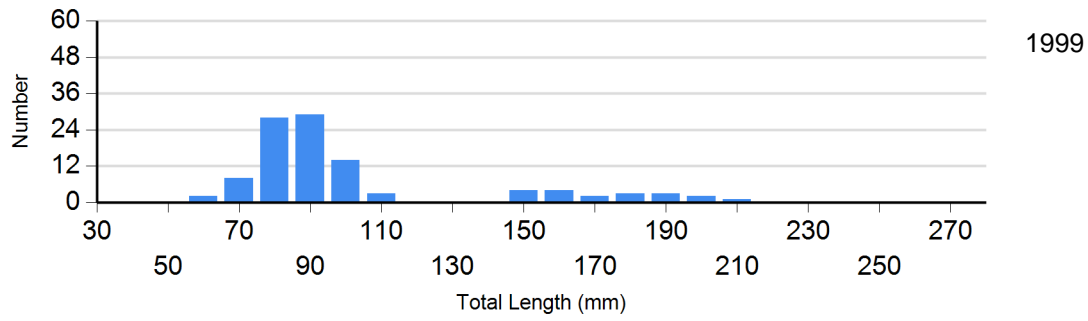
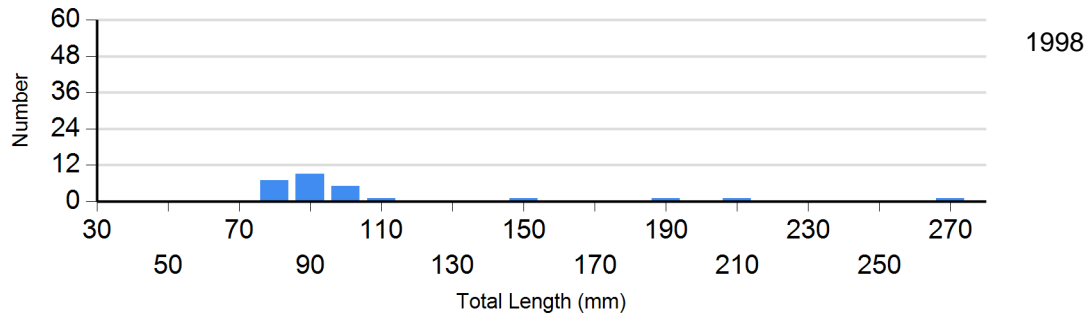
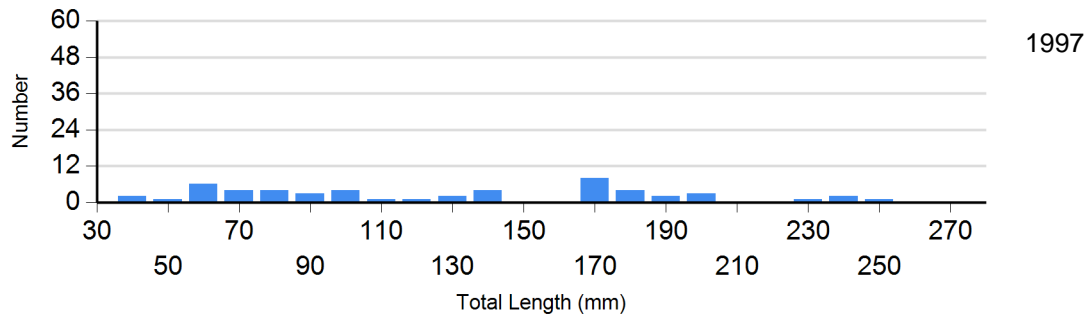
**Site:** 985  
**Species:** White Sucker



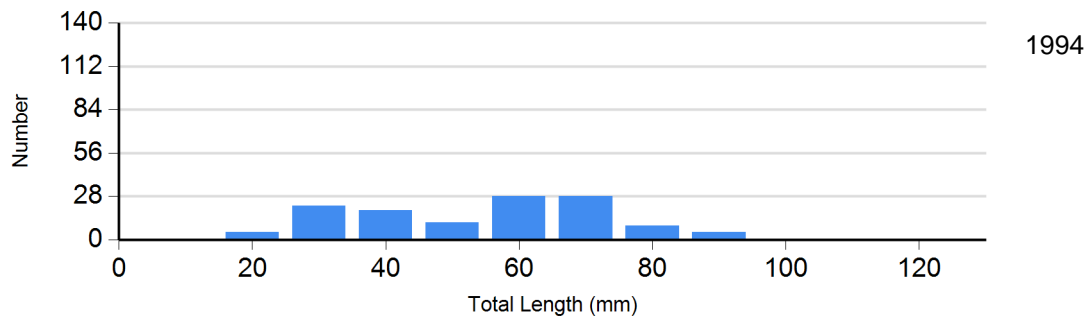


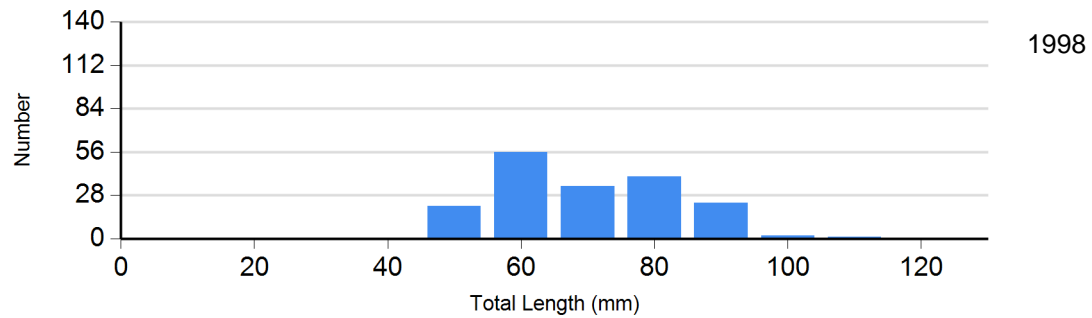
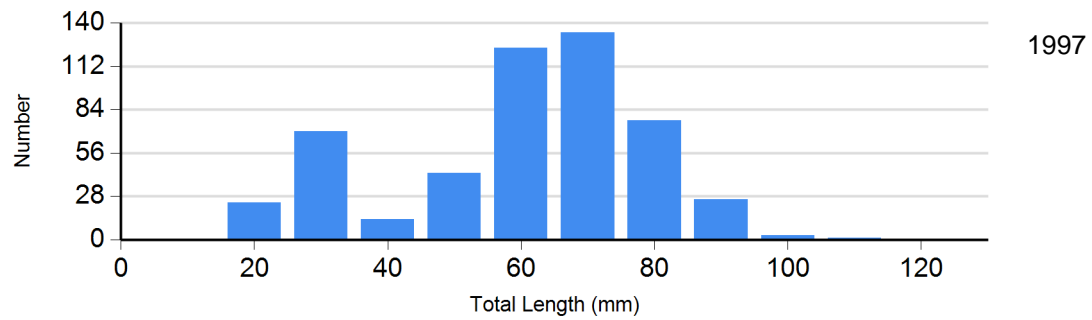
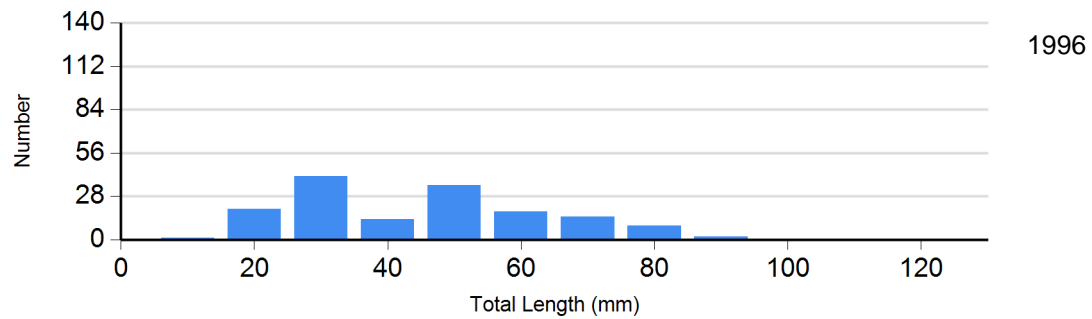
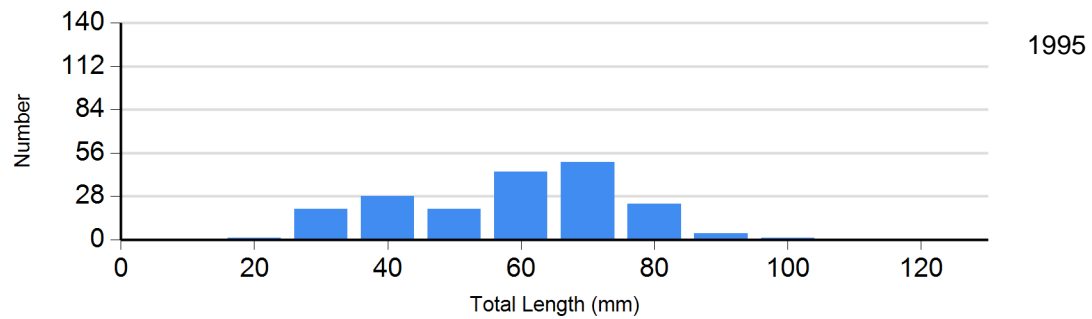
**Site:** 988  
**Species:** Brook Trout

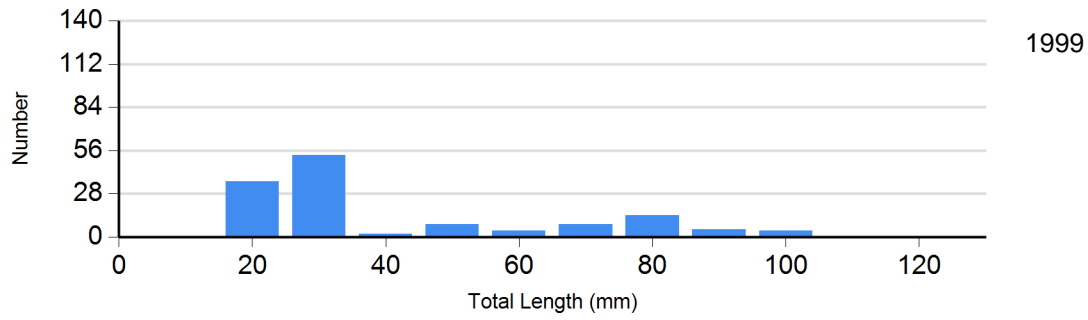




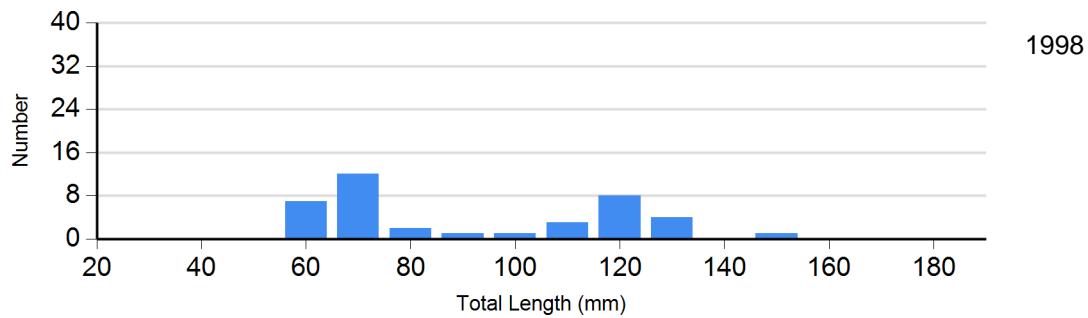
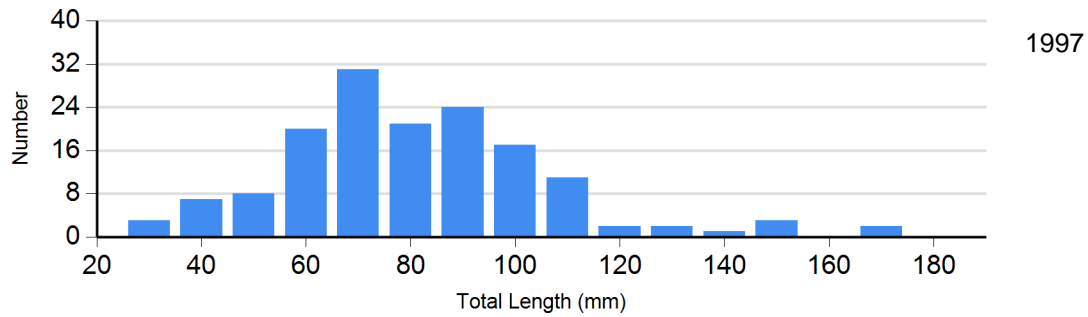
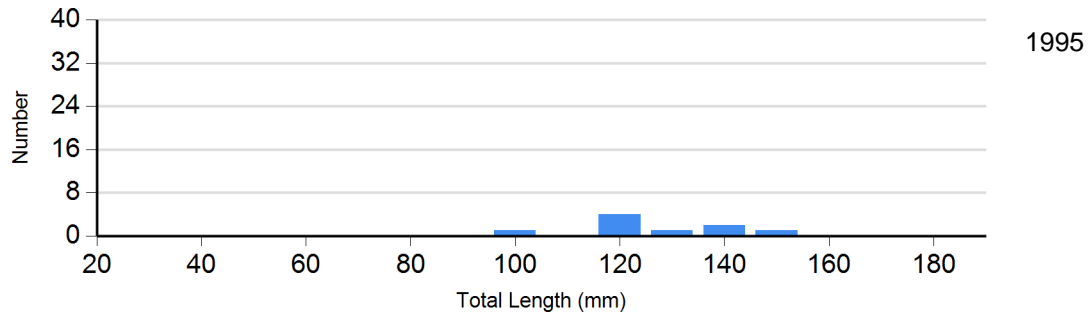
**Site:** 988  
**Species:** Longnose Dace





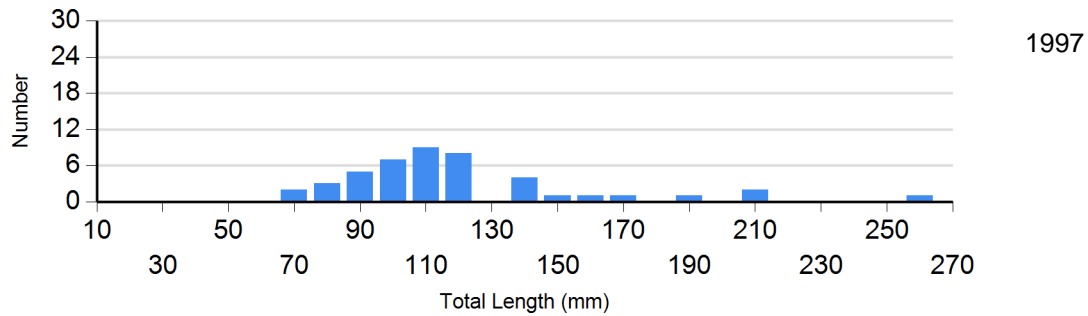
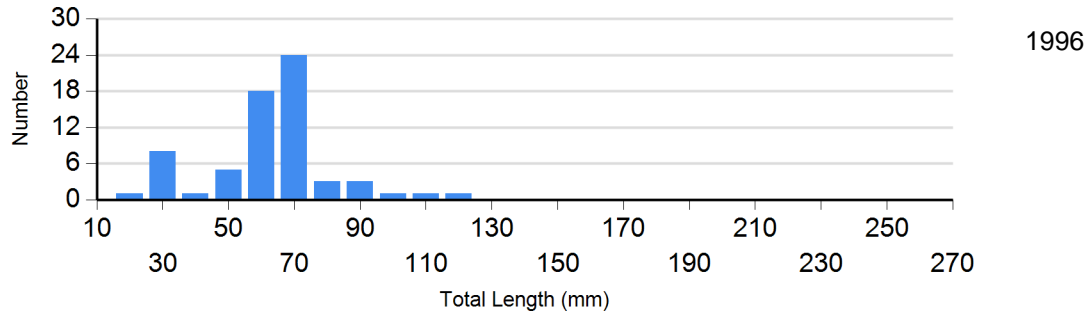
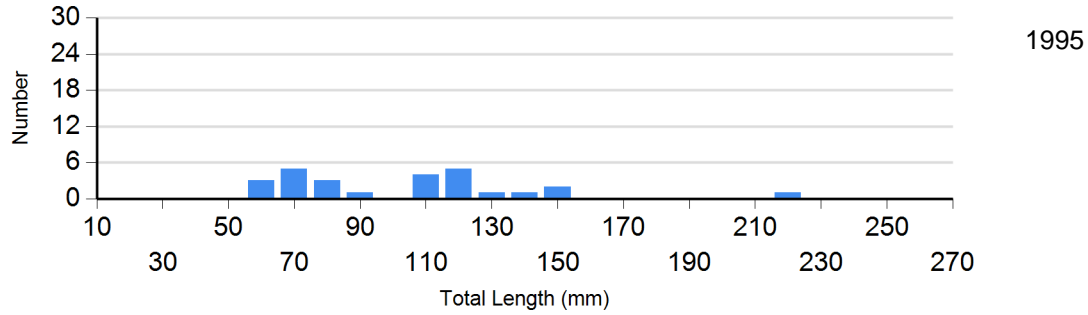
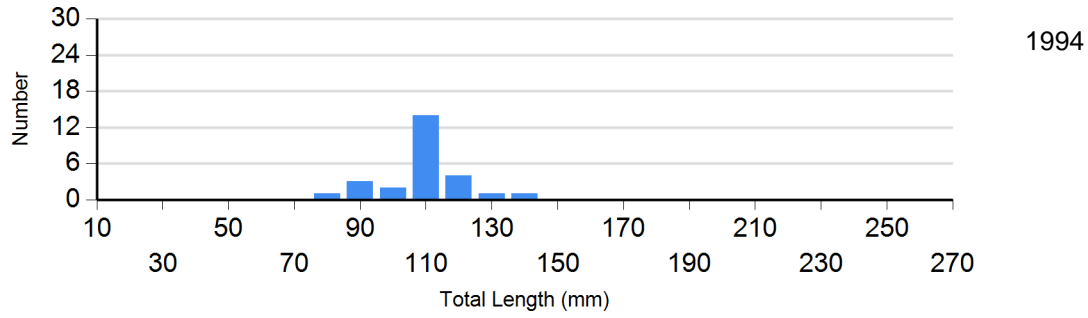


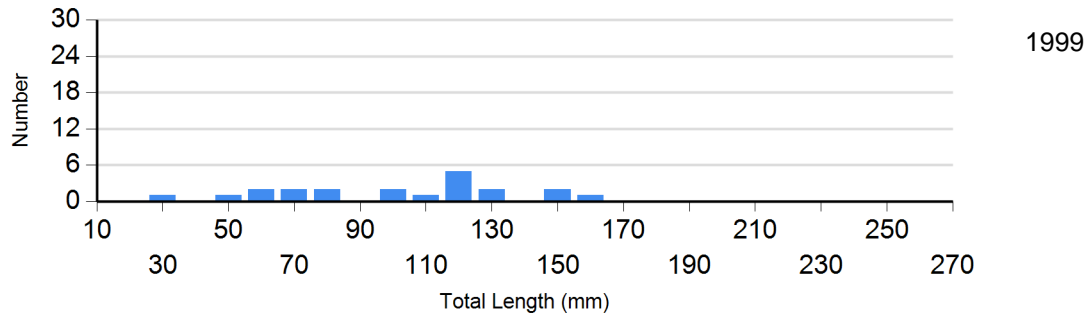
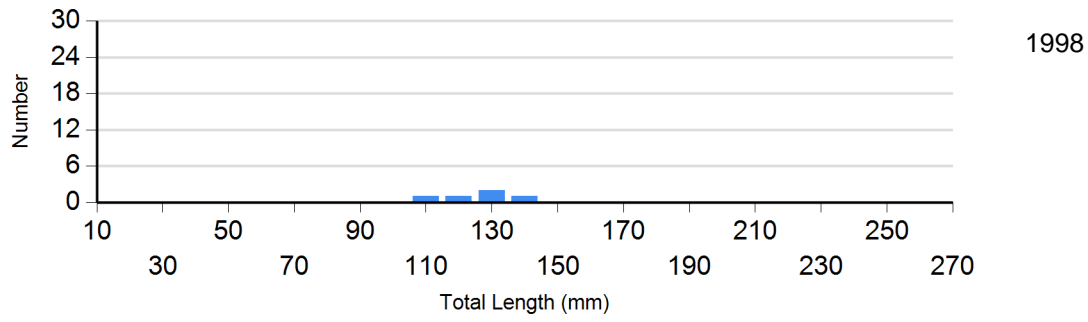
Site: 988  
Species: Mountain Sucker





Site: 988  
Species: White Sucker





**Site:** 988  
**Species:** YOY *Catostomus* sp.

