

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Bear Butte Creek, Meade County
49-0023-00
1996

Table 1. Population and Biomass Estimates for Bear Butte Creek

Site Number: 664	Date Sampled: 10/21/1996	Conductivity (umhos/cm): 1258
Site Midpoint (Latitude, Longitude): 44.42998180, -103.43069682	Site Length (m): 100	pH: 8.4
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 5.1	Water Temperature (C): 10.0
Stream Classification: BR2	Number of Pass: 3	Voltage: 150

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 Bullhead	All	4	4	6	4	78	4	40	32	3.44	64	173.0	49.5
Brown Trout	<200mm	31	33	38	31	642	22	330	260	19.20	531	141.9	33.5
Brown Trout	>=200mm	8	8	9	8	156	90	80	63	80.60	129	427.6	580.0
Brown Trout	All	39	41	46	39	798	81	410	323	72.51	660	200.5	101.8
Common Carp	All	4	4	5	4	78	172	40	32	153.14	64	531.8	2204.0
Creek Chub	All	37	38	41	37	739	32	380	299	28.14	611	131.7	42.6
Fathead Minnow	All	10	10	12	10	195	1	100	79	0.69	161	71.3	4.0
Longnose Dace	All	290	289	315	290	5623	9	2890	2277	7.91	4650	53.6	1.6
Mountain Sucker	All	10	9	13	10	175	2	90	71	2.03	145	68.4	13.0
Unidentified Cyprinid	All	76	136	230	76	2646	3	1360	1072	2.59	2188	48.3	1.1
White Sucker	All	142	167	190	144	3249	401	1670	1316	357.87	2687	216.2	123.4

Site Number: 680	Date Sampled: 10/18/1996	Conductivity (umhos/cm): 1122
Site Midpoint (Latitude, Longitude): 44.42402323, -103.44641846	Site Length (m): 124	pH: 8.2
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 6.8	Water Temperature (C): 13.0

Stream Classification: BR3

Number of Pass: 3

Voltage:

150

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	59	62	68	59	917	24	500	371	21.85	805	136.1	26.7
Brown Trout	>=200mm	4	4	4	4	59	38	32	24	33.56	52	384.3	635.3
Brown Trout	All	63	66	71	63	976	64	532	395	56.94	856	151.9	65.3
Creek Chub	All	131	301	553	131	4453	55	2427	1803	49.24	3906	94.7	12.4
Fathead Minnow	All	12	13	18	12	192	0	105	78	0.40	169	63.3	2.3
Longnose Dace	All	1109	1108	1151	1109	16391	29	8935	6638	26.02	14377	56.9	1.8
Mountain Sucker	All	20	20	20	20	296	6	161	120	5.67	260	124.2	21.5
Unidentified Cyprinid	All	80	209	486	80	3092	3	1685	1252	2.28	2712	43.2	0.8
White Sucker	All	203	225	242	208	3328	189	1815	1348	168.49	2920	135.4	56.7

Site Number: 955

Site Midpoint (Latitude, Longitude): 44.33484568, -103.62910289

Survey Completed by: OEA Research Inc.

Stream Classification: BK0

Date Sampled: 09/23/1996

Site Length (m): 100

Mean Width (m): 0.0

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C): 11.0

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	9	9	10	9	0	0	90	0	0.00	145	126.6	26.0
Brook Trout	All	9	9	10	9	0	0	90	0	0.00	145	126.6	26.0
White Sucker	All	9	9	10	9	0	0	90	0	0.00	145	41.0	2.7

Site Number: 976

Site Midpoint (Latitude, Longitude): 44.32812906, -103.64456485

Survey Completed by: OEA Research Inc.

Date Sampled: 09/23/1996

Site Length (m): 100

Conductivity (umhos/cm):

pH:

Stream Classification: BK0

Mean Width (m): 0.0

Water Temperature (C): 9.0

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)
Brook Trout	<200mm	30	30	31	30	0	0	300	0	0.00	483	105.6	13.6
Brook Trout	All	30	30	31	30	0	0	300	0	0.00	483	105.6	13.6
White Sucker	All	44	47	53	44	0	0	470	0	0.00	756	41.6	3.1

Site Number: 977

Date Sampled: 09/23/1996

Conductivity (umhos/cm):

Site Midpoint (Latitude, Longitude): 44.32765077, -103.64555220

Site Length (m): 100

pH:

Survey Completed by: OEA Research Inc.

Mean Width (m): 0.0

Water Temperature (C): 7.0

Stream Classification: BK0, 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)
Brook Stickleback	All	4	8	42	4	0	0	80	0	0.00	129	64.0	2.8
Brook Trout	<200mm	47	47	49	47	0	0	470	0	0.00	756	112.1	15.8
Brook Trout	All	47	47	49	47	0	0	470	0	0.00	756	112.1	15.8
Rainbow Trout	>=200mm	2	2	2	2	0	0	20	0	0.00	32	329.5	577.0
Rainbow Trout	All	2	2	2	2	0	0	20	0	0.00	32	329.5	577.0
White Sucker	All	83	139	218	83	0	0	1390	0	0.00	2237	54.1	5.5

Site Number: 986

Date Sampled: 09/21/1996

Conductivity (umhos/cm):

Site Midpoint (Latitude, Longitude): 44.32485945, -103.65187821

Site Length (m): 100

pH:

Survey Completed by: OEA Research Inc.

Mean Width (m): 0.0

Water Temperature (C): 11.0

Stream Classification: BK3

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)
Brook Stickleback	All	1	1	2	1	0	0	10	0	0.00	16	53.0	1.0
Brook Trout	<200mm	53	53	54	53	0	0	530	0	0.00	853	99.5	11.1
Brook Trout	>=200mm	1	1	1	1	0	0	10	0	0.00	16	212.0	121.0
Brook Trout	All	54	54	55	54	0	0	540	0	0.00	869	101.6	13.1
Longnose Dace	All	110	120	131	110	0	0	1200	0	0.00	1931	40.1	1.6
White Sucker	All	46	46	48	46	0	0	460	0	0.00	740	79.2	8.0

Site Number: 986

Site Midpoint (Latitude, Longitude): 44.32485945, -103.65187821

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK3

Date Sampled: 11/12/1996

Site Length (m): 100

Mean Width (m): 3.5

Number of Pass: 3

Conductivity (umhos/cm): 3020

pH: 8.5

Water Temperature (C): 1.0

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)
Brook Trout	<200mm	45	45	47	45	1271	13	450	515	12.01	724	106.1	10.6
Brook Trout	>=200mm	1	1	1	1	28	0	10	11	0.20	16	404.0	8.0
Brook Trout	All	46	46	48	46	1299	14	460	526	12.21	740	112.5	10.5
Longnose Dace	All	53	124	293	53	3503	11	1240	1419	10.01	1995	49.5	3.2
Mountain Sucker	All	12	27	102	12	763	10	270	309	8.58	434	86.0	12.6
White Sucker	All	7	7	9	7	198	4	70	80	3.66	113	117.9	20.7

Site Number: 988

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK0

Date Sampled: 09/21/1996

Site Length (m): 100

Mean Width (m): 0.0

Conductivity (umhos/cm):

pH:

Water Temperature (C): 11.0

Species	Size Class	Total Number Captured	Est. # in site	Number of Pass: 3						Voltage:			
				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	3	3	5	3	0	0	30	0	0.00	48	47.7	1.0
Brook Trout	<200mm	20	20	21	20	0	0	200	0	0.00	322	98.3	11.0
Brook Trout	All	20	20	21	20	0	0	200	0	0.00	322	98.3	11.0
Longnose Dace	All	480	620	689	551	0	0	6200	0	0.00	9976	50.1	3.3
White Sucker	All	66	70	77	66	0	0	700	0	0.00	1126	68.0	5.9

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 Bear Butte Creek, 1986-1996

Site 664

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Black Bullhead	Oct 21, 1996	4	4-6	
Brown Trout <200mm	Oct 21, 1996	33	31-38	
Brown Trout >=200mm	Oct 21, 1996	8	8-9	BR2
Common Carp	Oct 21, 1996	4	4-5	
Creek Chub	Oct 21, 1996	38	37-41	
Fathead Minnow	Oct 21, 1996	10	10-12	
Longnose Dace	Oct 21, 1996	289	290-315	

Mountain Sucker	Oct 21, 1996	9	10-13
Unidentified Cyprinid	Oct 21, 1996	136	76-230
White Sucker	Oct 21, 1996	167	144-190

Site 680

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 18, 1996	62	59-68	
Brown Trout >=200mm	Oct 18, 1996	4	4-4	BR3
Creek Chub	Oct 18, 1996	301	131-553	
Fathead Minnow	Oct 18, 1996	13	12-18	
Longnose Dace	Oct 18, 1996	1108	1109-1151	
Mountain Sucker	Oct 18, 1996	20	20-20	
Unidentified Cyprinid	Oct 18, 1996	209	80-486	
White Sucker	Oct 18, 1996	225	208-242	

Site 955

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 09, 1992	35	35-37	
	Sep 19, 1995	2	2-3	

Brook Trout <200mm	Sep 23, 1996	9	9-10	
Brook Trout >=200mm	Sep 09, 1992	2	2-2	BK3
Longnose Dace	Sep 09, 1992	521	449-593	
Mountain Sucker	Sep 09, 1992	82	77-90	
Rainbow Trout >=200mm	Sep 09, 1992	5	5-5	RB1
White Sucker	Sep 09, 1992	10	10-12	
	Sep 23, 1996	9	9-10	

Site 976

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Apr 16, 1993	2	2-2	
	Jun 10, 1993	6	6-7	
	Sep 23, 1996	30	30-31	
Brook Trout >=200mm	Sep 20, 1994	1	1-1	BK3
Longnose Dace	Apr 16, 1993	323	71-1282	
	Jun 10, 1993	79	59-107	
	Sep 18, 1995	74	68-83	

Mountain Sucker	Apr 16, 1993	2	2-4	
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
White Sucker	Apr 16, 1993	2	2-5	
	Sep 23, 1996	47	44-53	

Site 977

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Stickleback	Sep 23, 1996	8	4-42	
Brook Trout <200mm	Jun 10, 1993	8	8-8	
	Sep 23, 1996	47	47-49	
Creek Chub	Sep 18, 1995	1	1-1	
Longnose Dace	Apr 16, 1993	128	66-239	
	Jun 10, 1993	68	44-111	
Mountain Sucker	Apr 16, 1993	16	13-26	
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
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	

Site 986

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Stickleback	Sep 21, 1996	1	1-2	
Brook Trout <200mm	Sep 10, 1992	6	6-6	
	May 10, 1993	9	9-10	
	Sep 21, 1996	53	53-54	
	Nov 12, 1996	45	45-47	
Brook Trout >=200mm	May 10, 1993	1	1-2	BK3
	Jun 06, 1995	1	1-1	BK3

Brook Trout >=200mm	Sep 21, 1996	1	1-1	BK3
	Nov 12, 1996	1	1-1	BK3
Longnose Dace	Sep 10, 1992	537	256-818	
	May 10, 1993	3	3-5	
	Jun 06, 1995	1	1-1	
	Sep 18, 1995	59	48-77	
	Sep 21, 1996	120	110-131	
	Nov 12, 1996	124	53-293	
Mountain Sucker	Sep 10, 1992	33	19-77	
	Nov 12, 1996	27	12-102	
Rainbow Trout >=200mm	May 10, 1993	2	2-2	RB2
White Sucker	Sep 10, 1992	1	1-5	
	May 10, 1993	6	6-7	
	Sep 18, 1995	1	1-2	
	Sep 21, 1996	46	46-48	
	Nov 12, 1996	7	7-9	

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	
Brook Trout >=200mm	May 10, 1993	1	1-4	BK3
	Jun 06, 1995	2	2-3	BK3
	Sep 18, 1995	1	1-5	BK3
Creek Chub	Sep 18, 1995	1	1-5	
Longnose Dace	May 10, 1993	388	389-420	
	Sep 20, 1994	128	127-131	
	Jun 06, 1995	100	101-113	

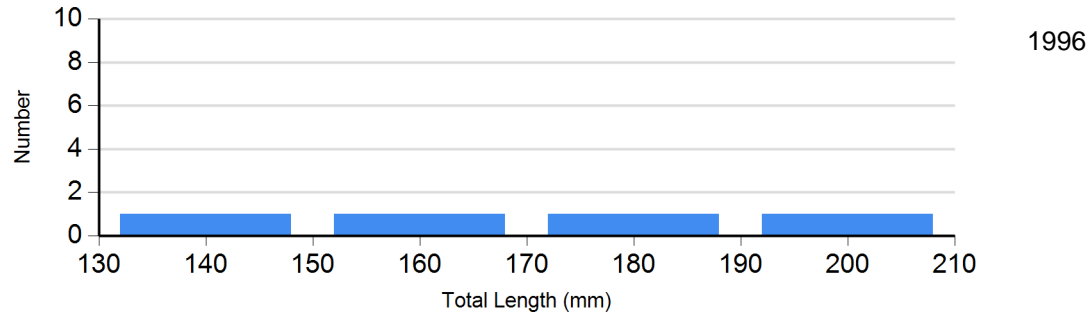
Longnose Dace	Sep 18, 1995	94	94-94	
	Sep 21, 1996	620	551-689	
Mountain Sucker	Jun 06, 1995	14	6-73	
	Sep 18, 1995	3	3-3	
Rainbow Trout <200mm	Sep 10, 1992	2	2-2	
	May 10, 1993	1	1-1	
Rainbow Trout >=200mm	May 10, 1993	1	1-1	RB2
White Sucker	Sep 10, 1992	1	1-1	
	May 10, 1993	48	28-97	
	Sep 20, 1994	26	26-27	
	Jun 06, 1995	28	15-76	
	Sep 18, 1995	11	11-13	
	Sep 21, 1996	70	66-77	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

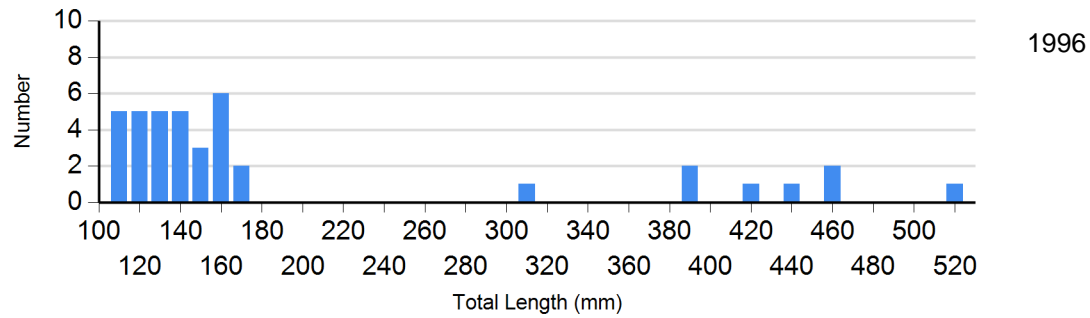
Site: 664

Species: Black Bullhead



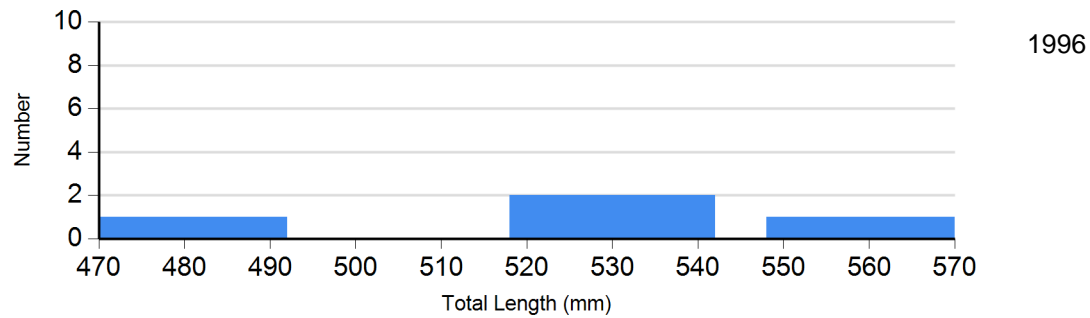
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Species: Brown Trout

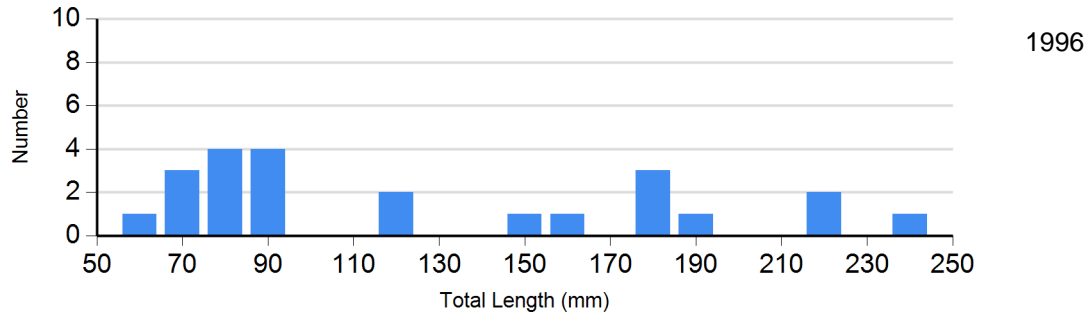


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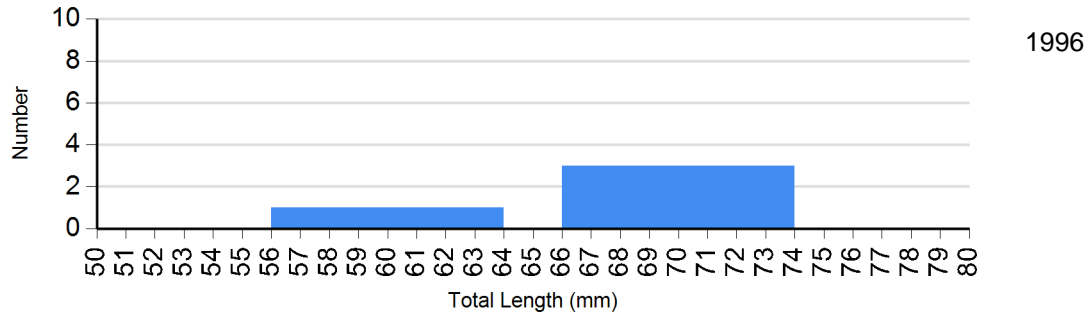
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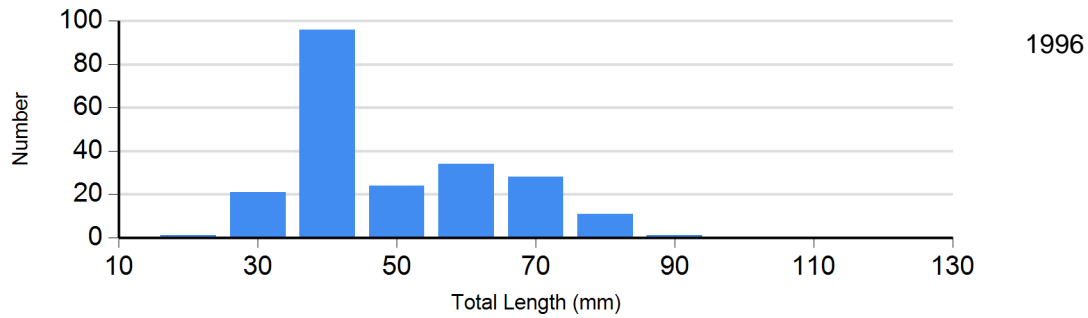
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Species: Creek Chub



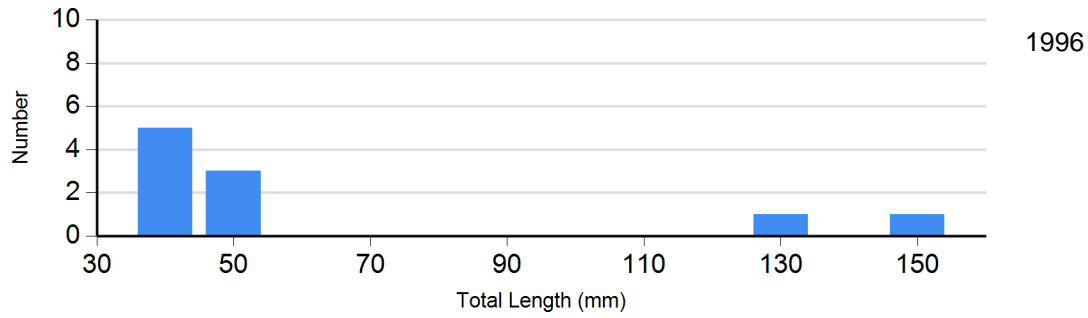
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Species: Fathead Minnow



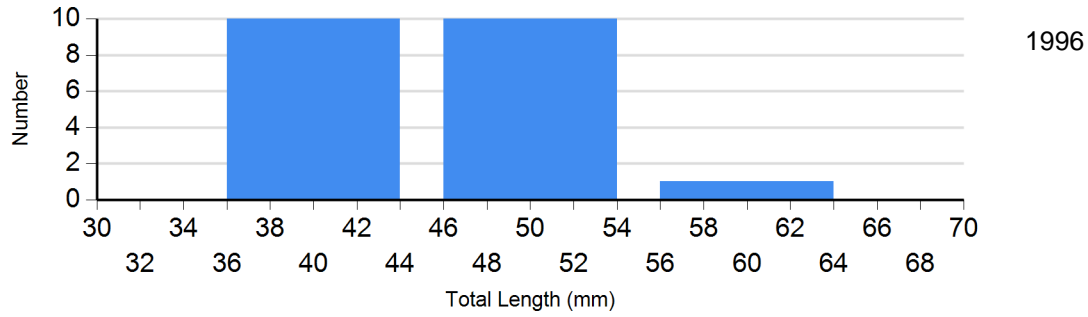
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Species: Longnose Dace



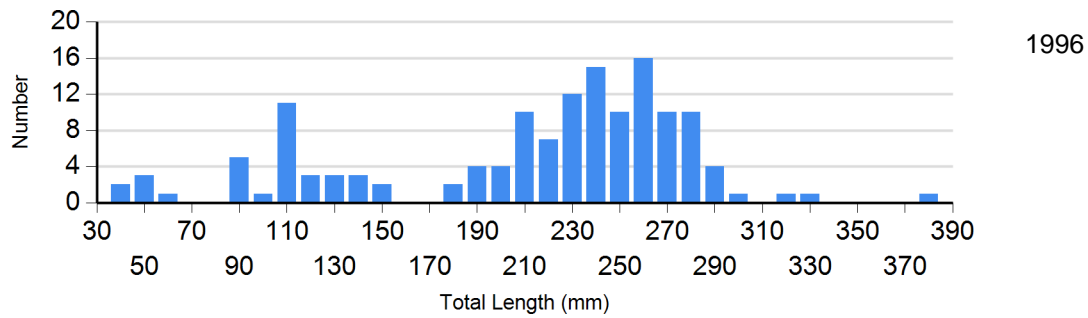
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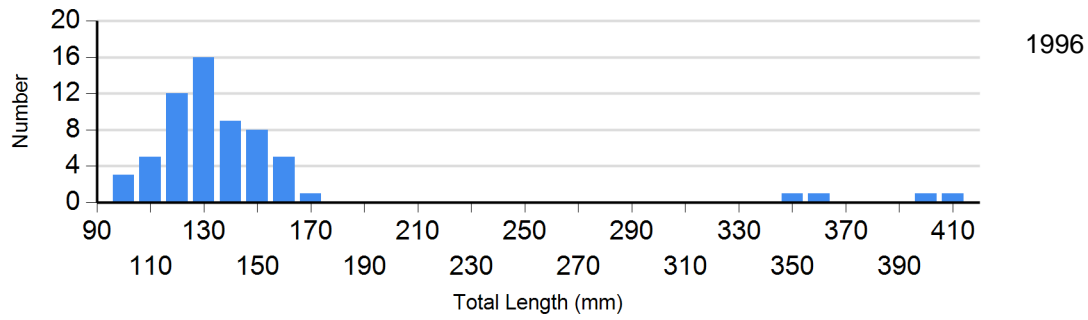
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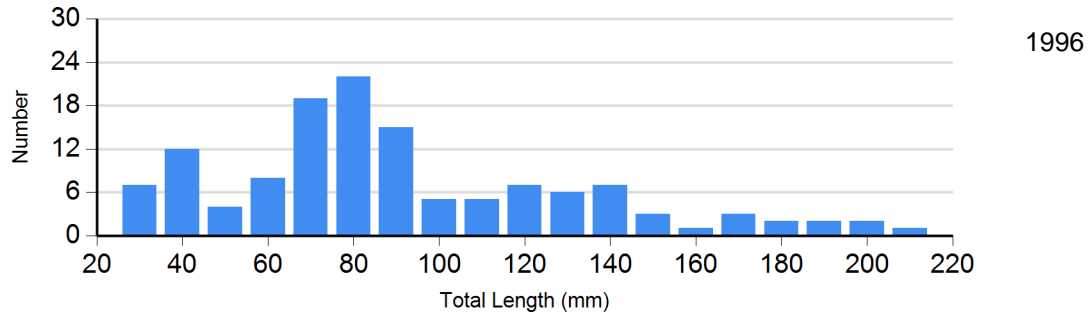
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Species: White Sucker



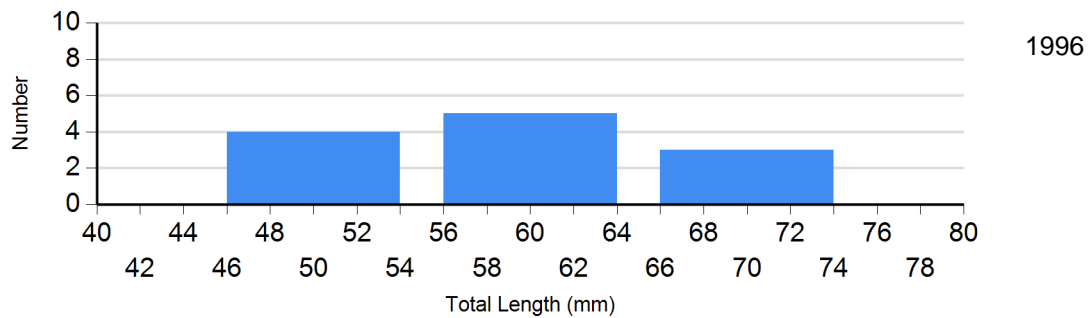
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Species: Brown Trout



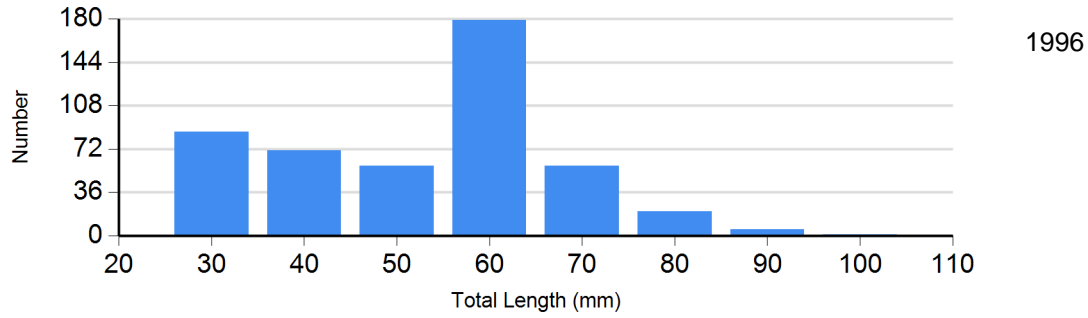
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Species: Creek Chub



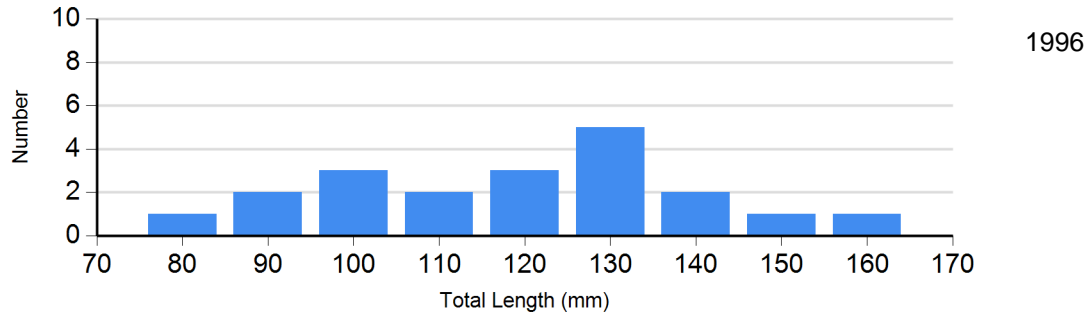
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Species: Fathead Minnow



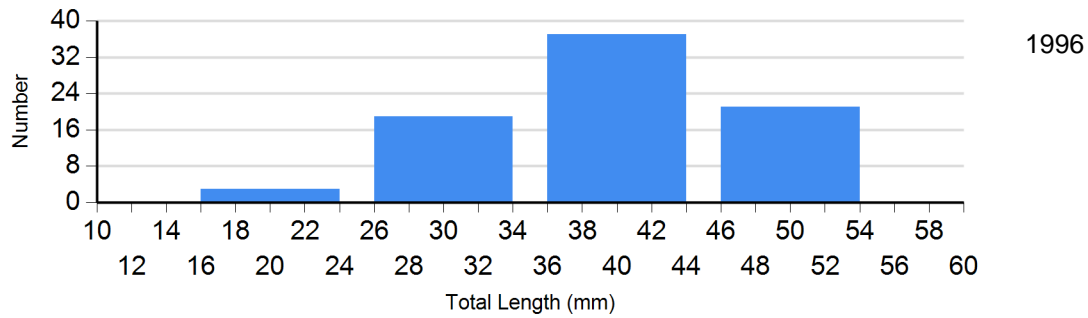
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Species: Longnose Dace



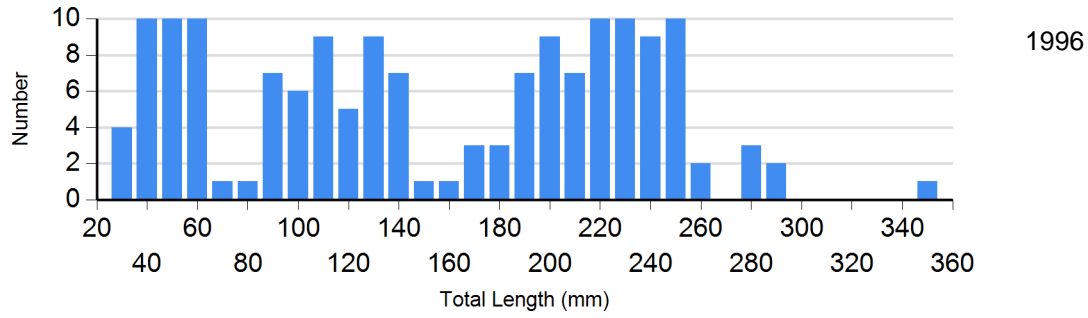
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Species: Mountain Sucker



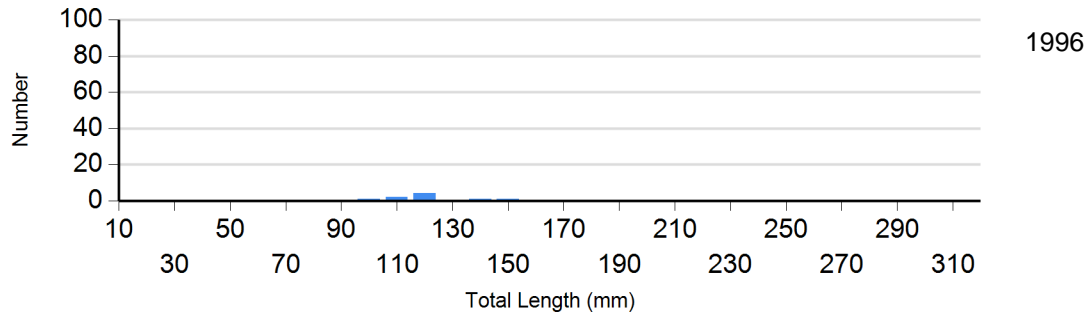
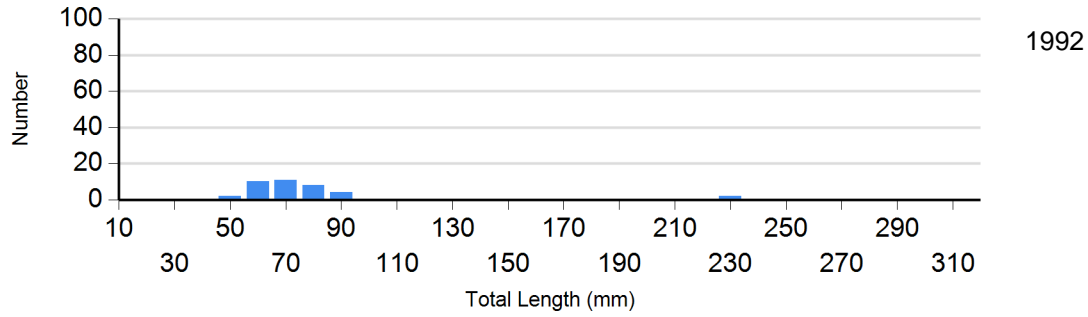
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Species: Unidentified Cyprinid



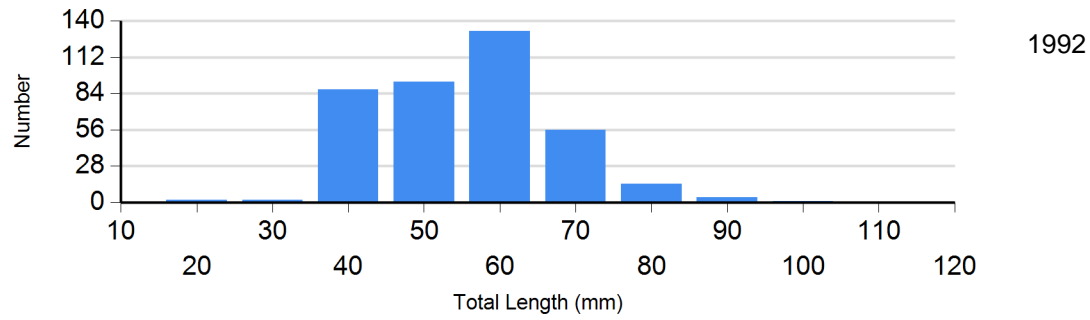
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Species: White Sucker



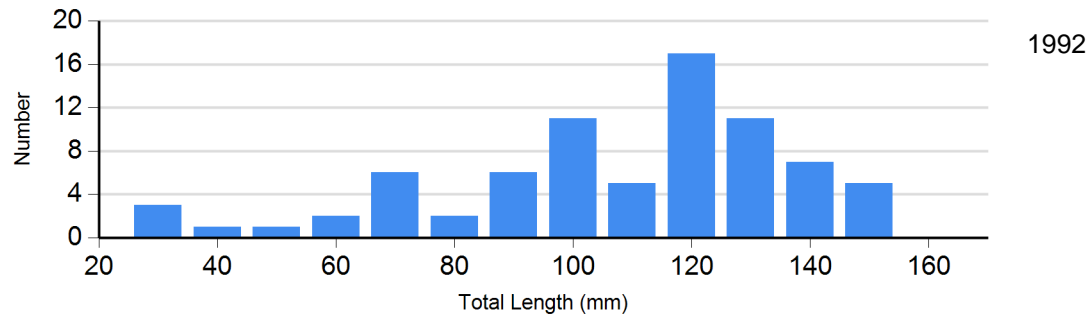
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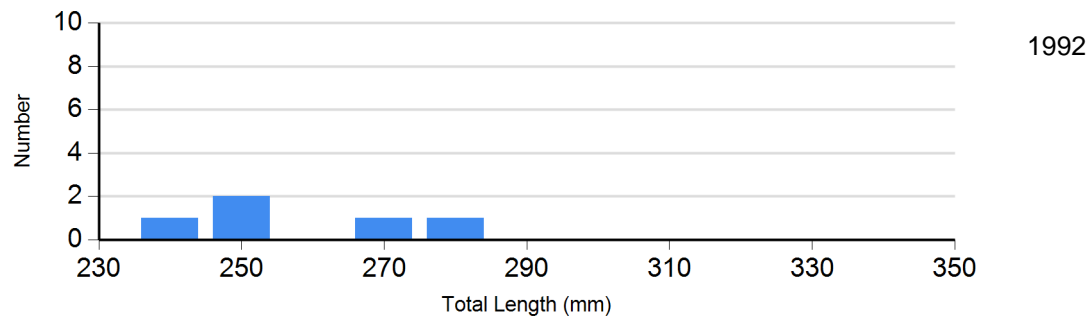
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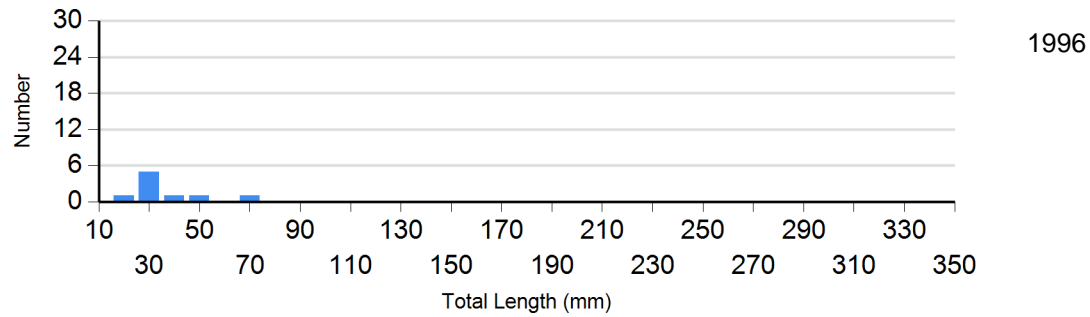
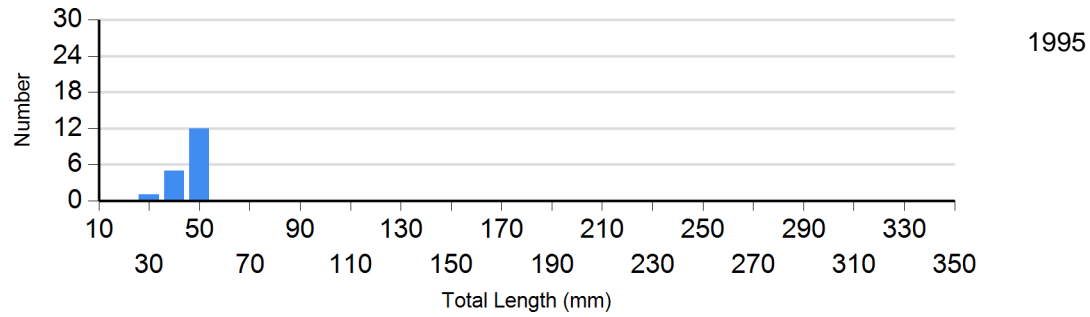
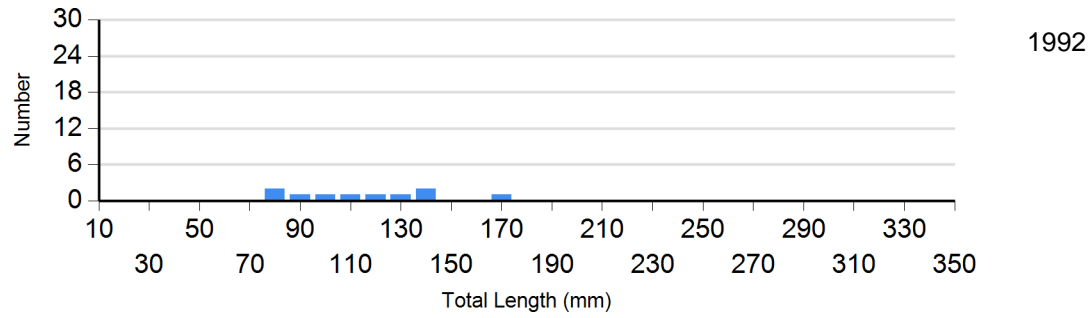
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Species: Mountain Sucker



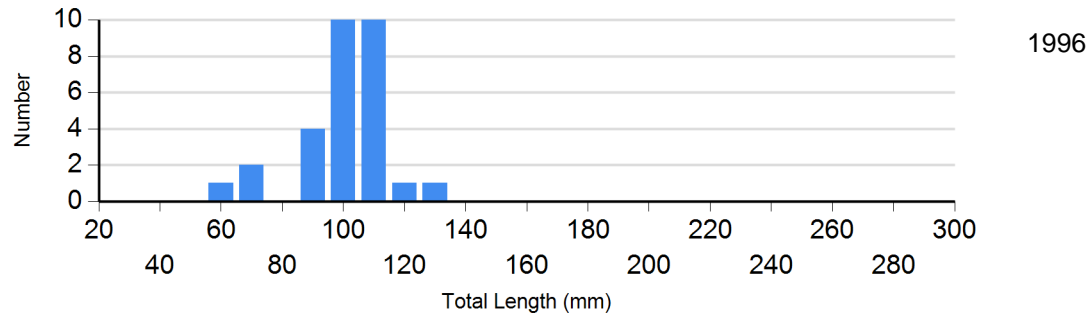
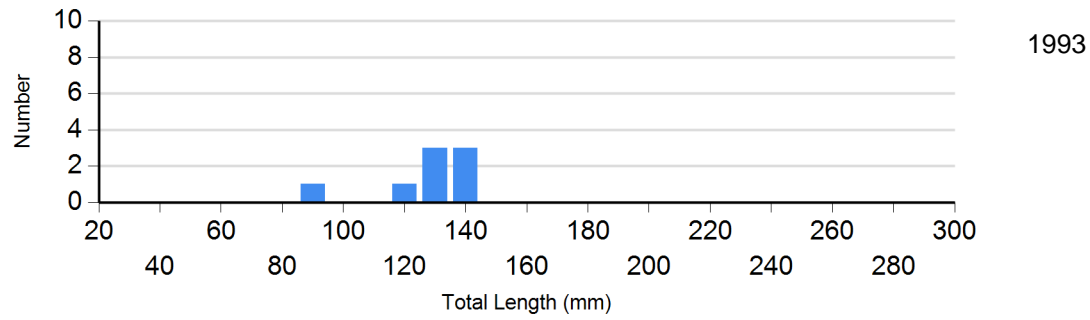
Site: 955
Species: Rainbow Trout



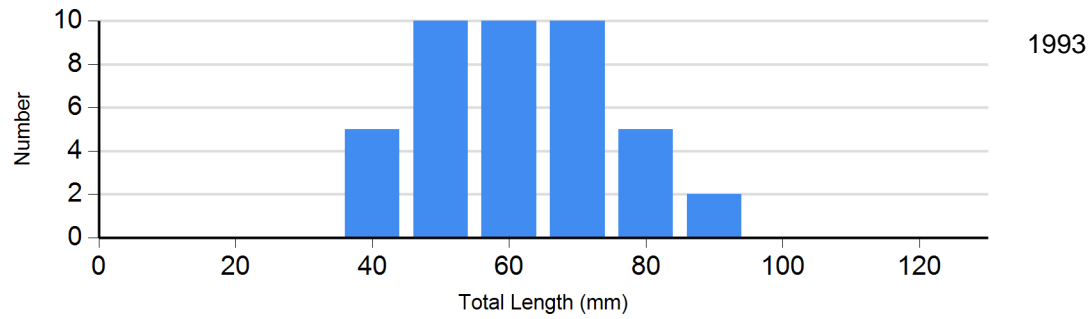
Site: 955
Species: White Sucker

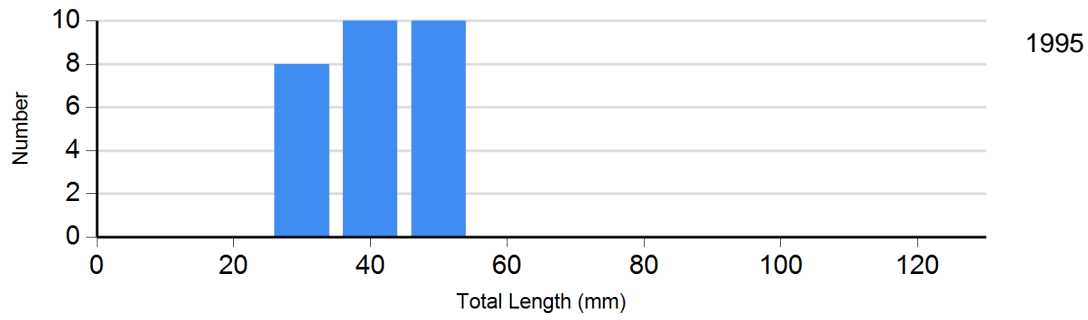


Site: 976
Species: Brook Trout

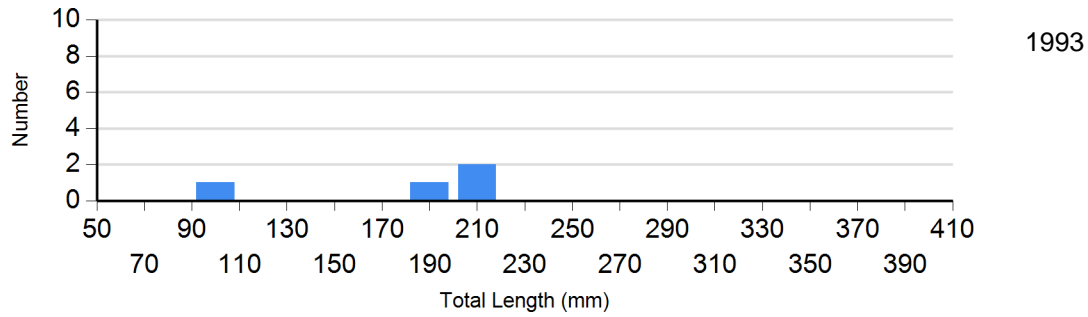


Site: 976
Species: Longnose Dace

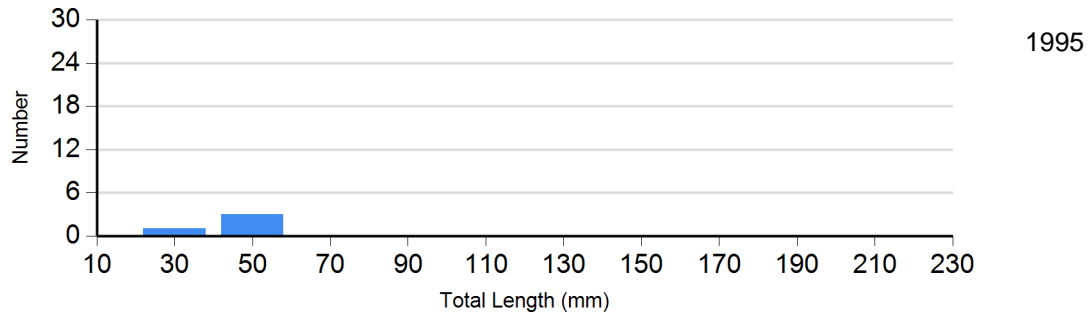


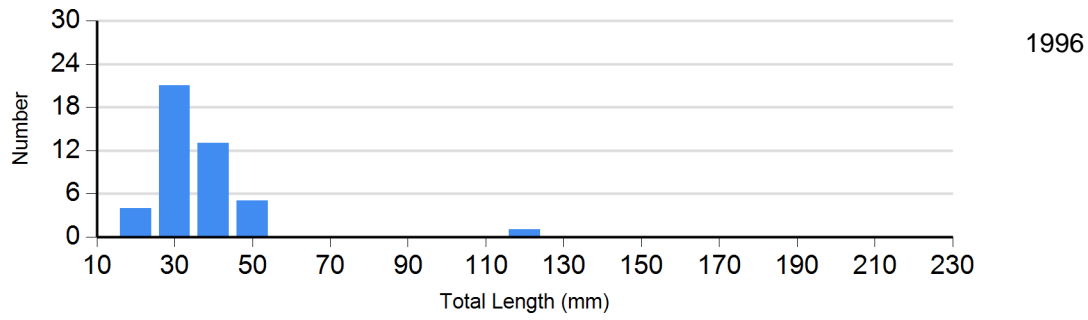


Site: 976
Species: Rainbow Trout

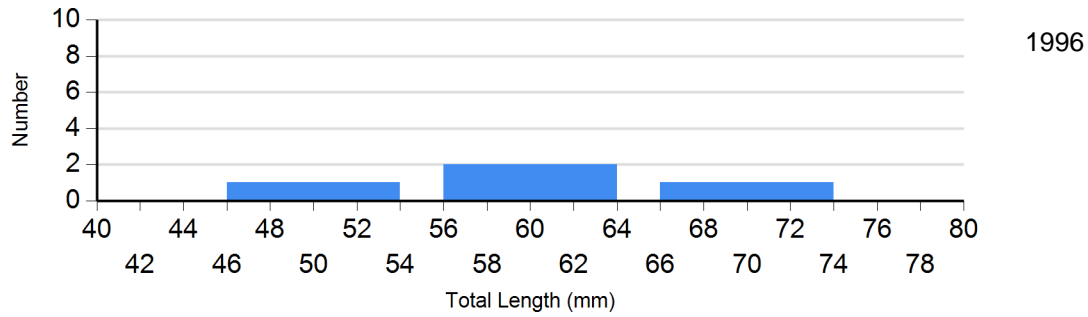


Site: 976
Species: White Sucker

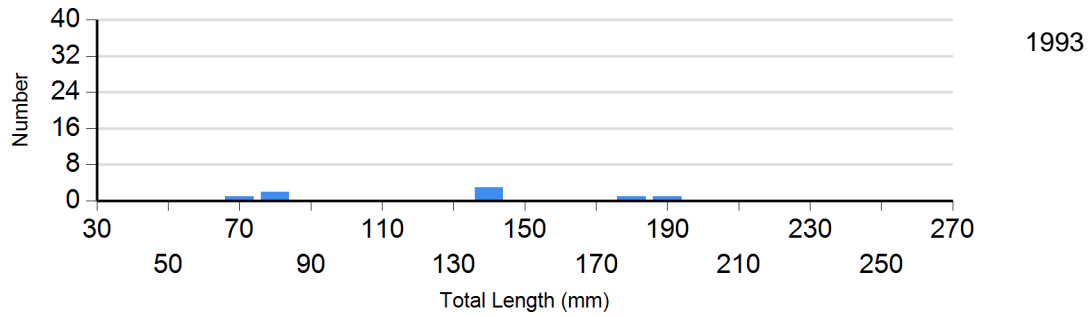


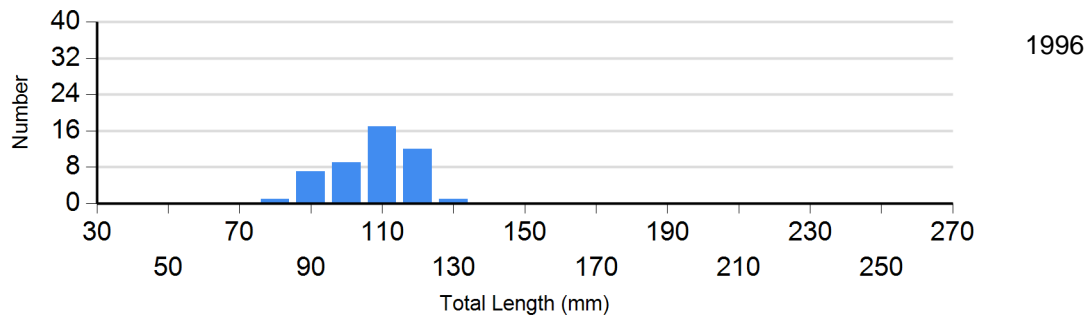


Site: 977
Species: Brook Stickleback

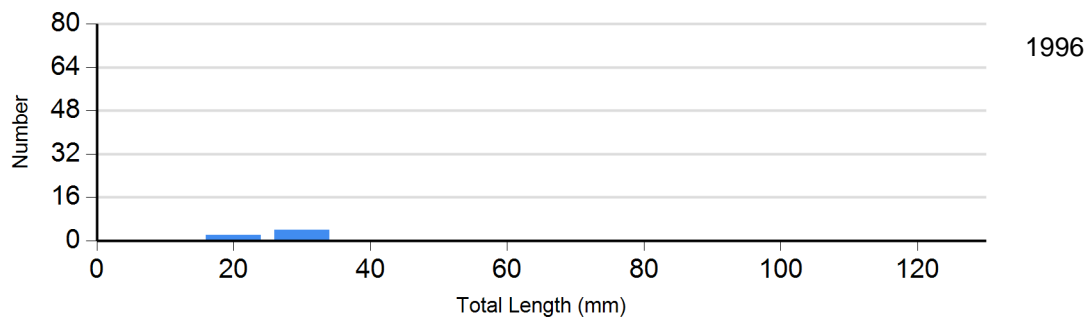
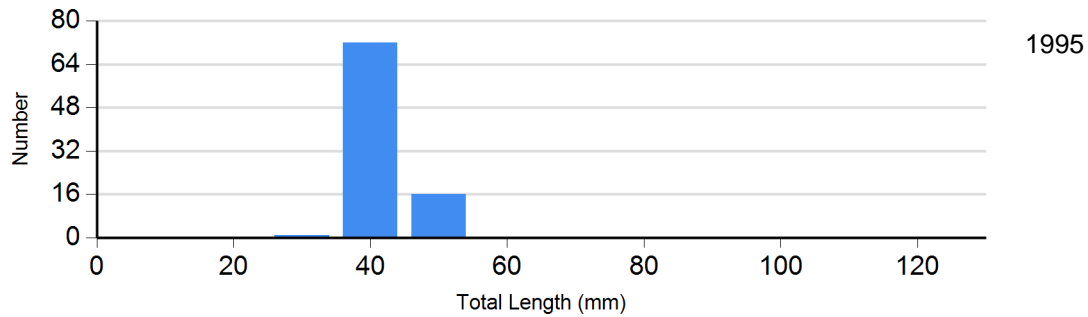
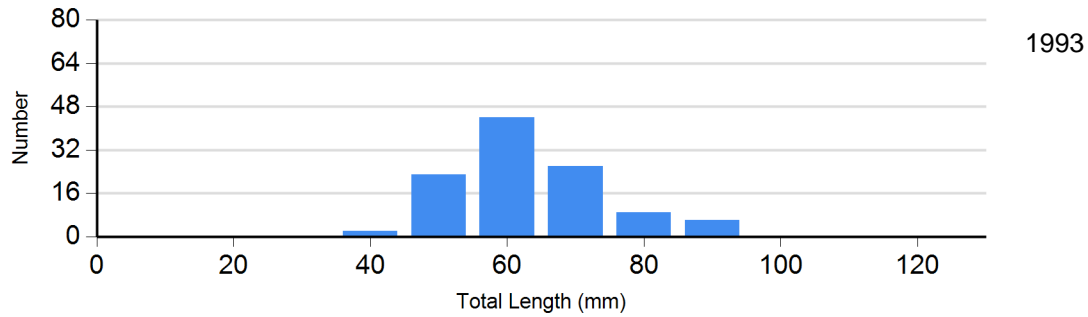


Site: 977
Species: Brook Trout

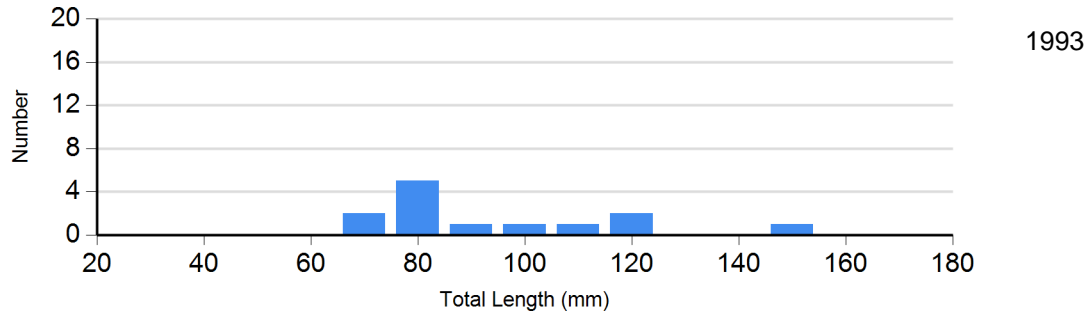




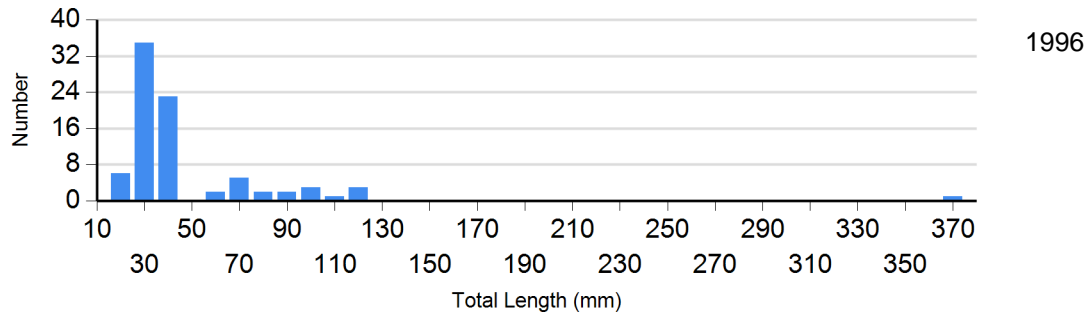
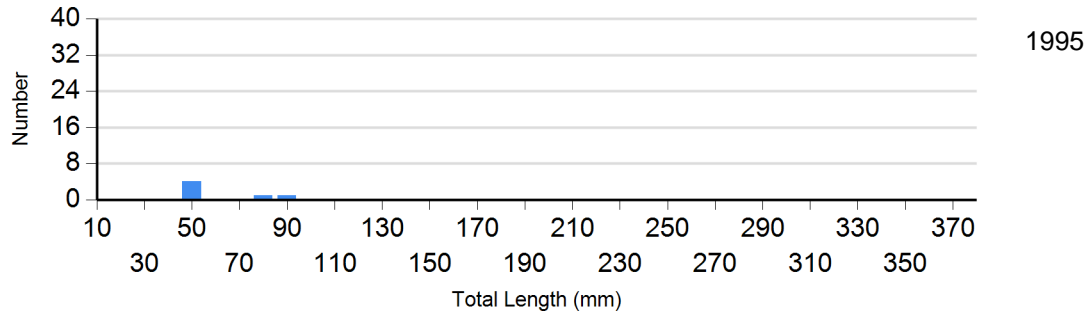
Site: 977
Species: Longnose Dace



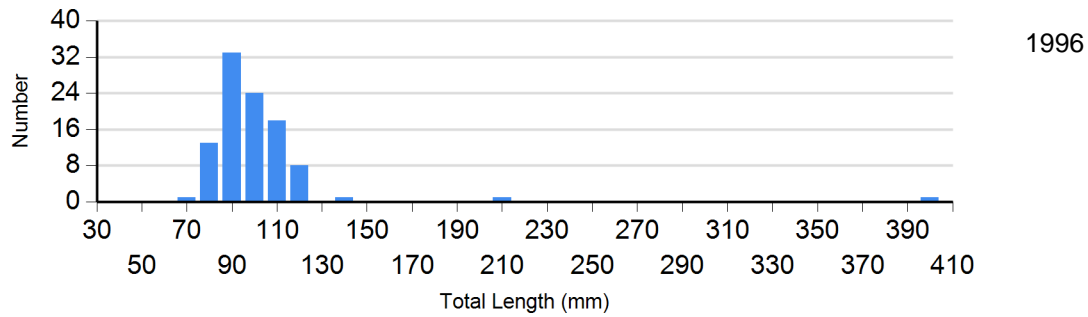
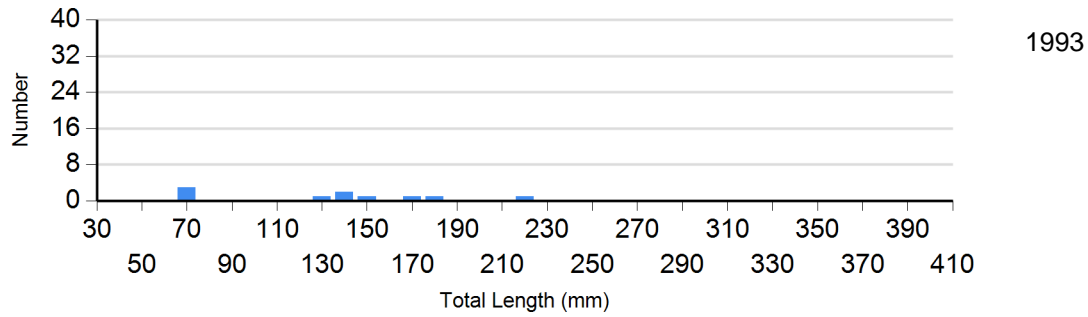
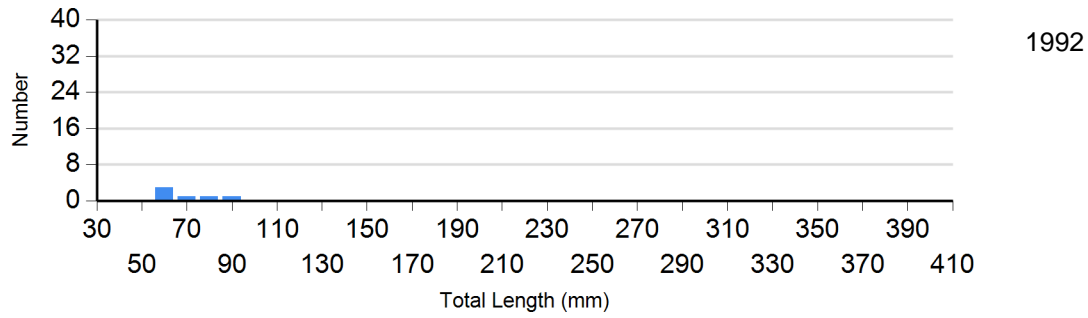
Site: 977
Species: Mountain Sucker



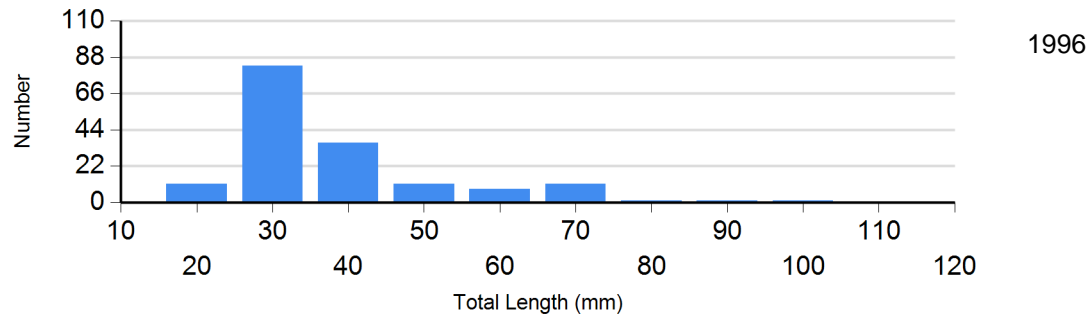
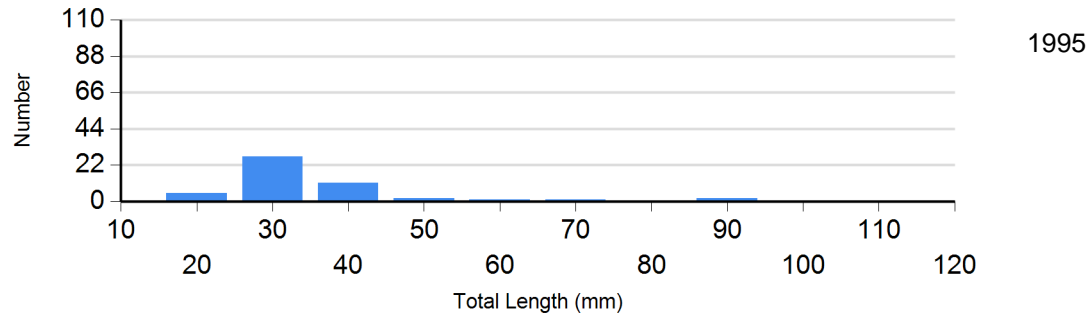
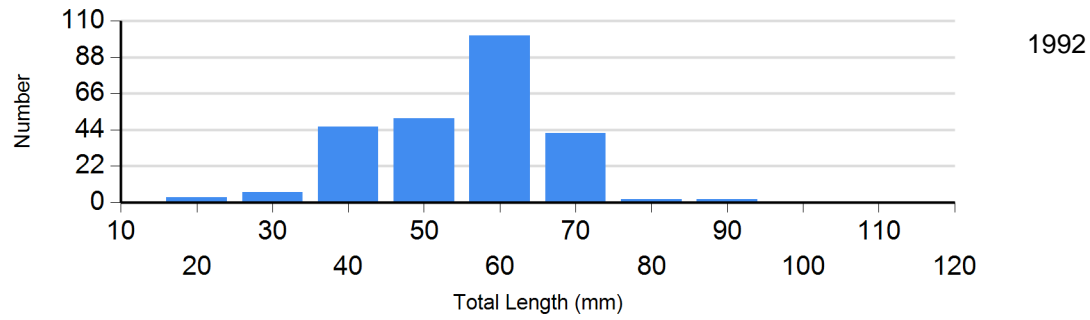
Site: 977
Species: White Sucker



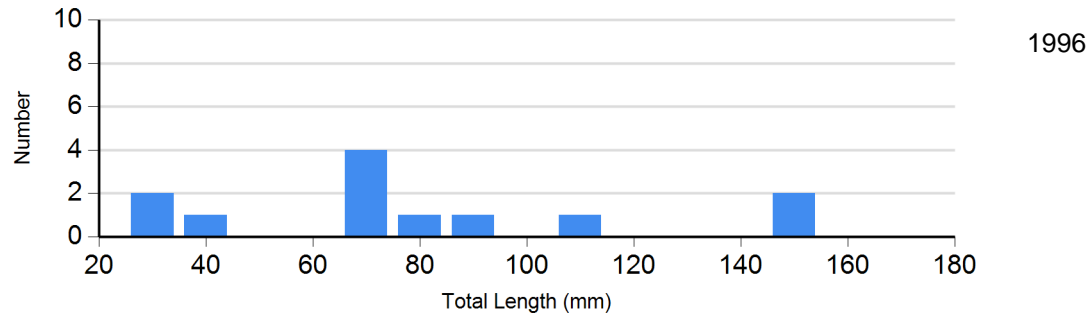
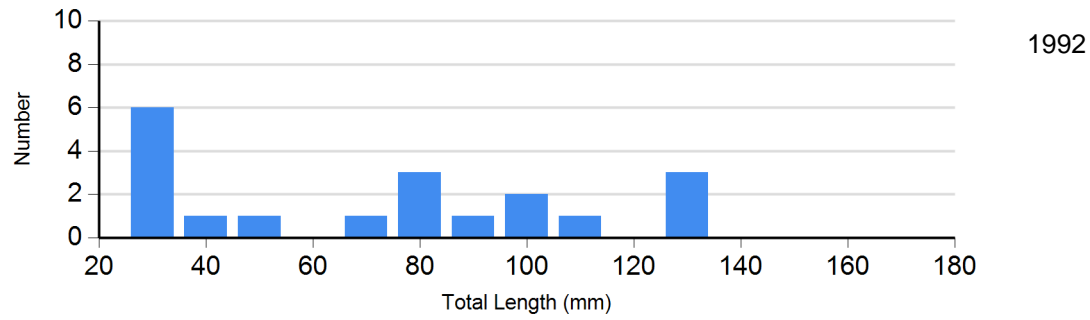
Site: 986
Species: Brook Trout



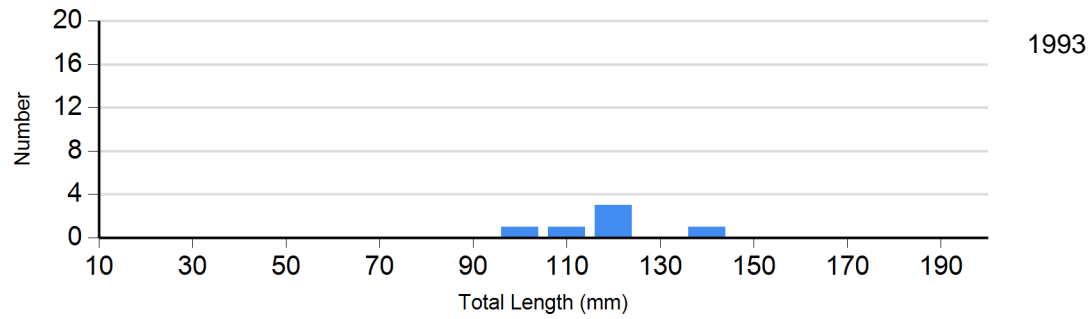
Site: 986
Species: Longnose Dace

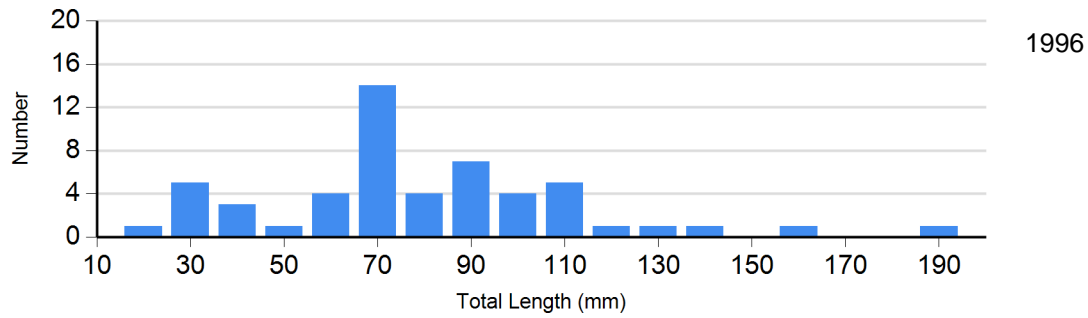


Site: 986
Species: Mountain Sucker

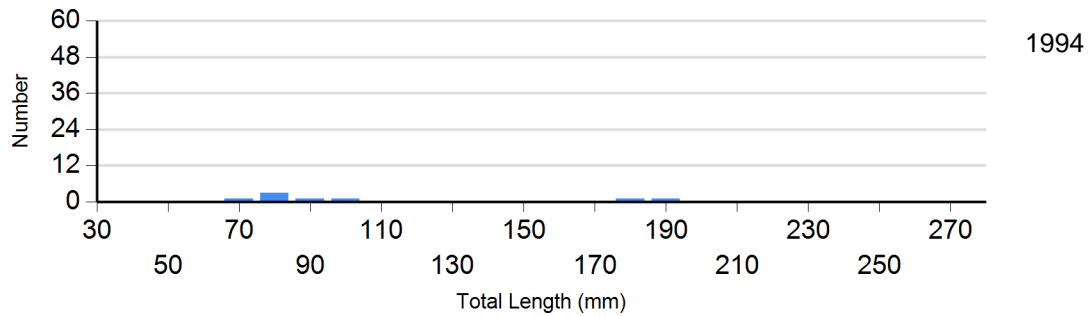
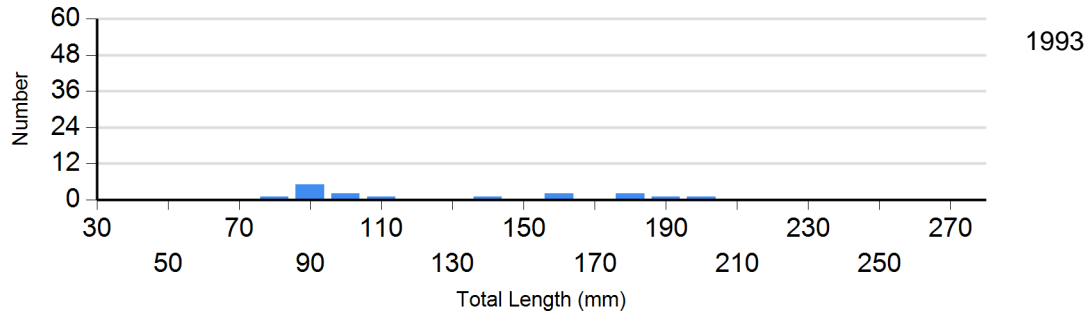
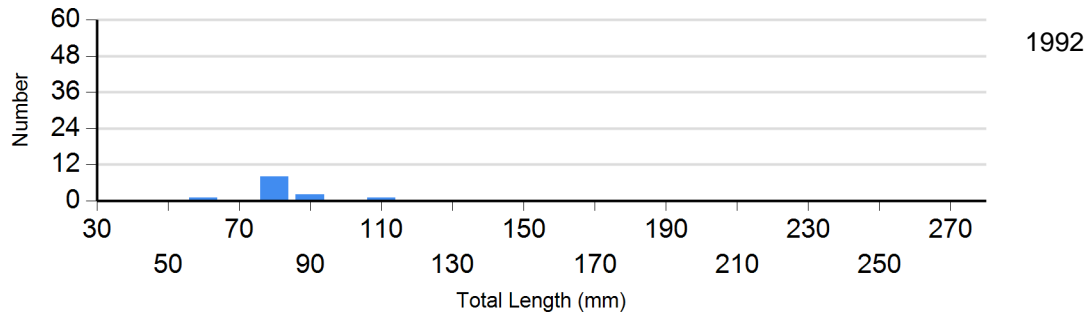


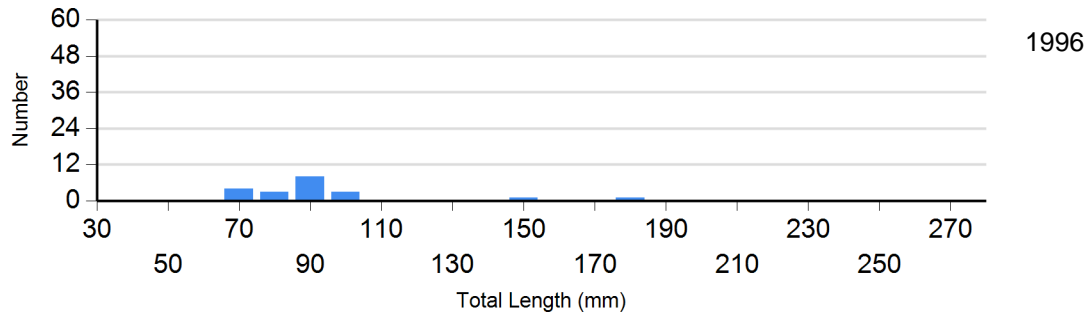
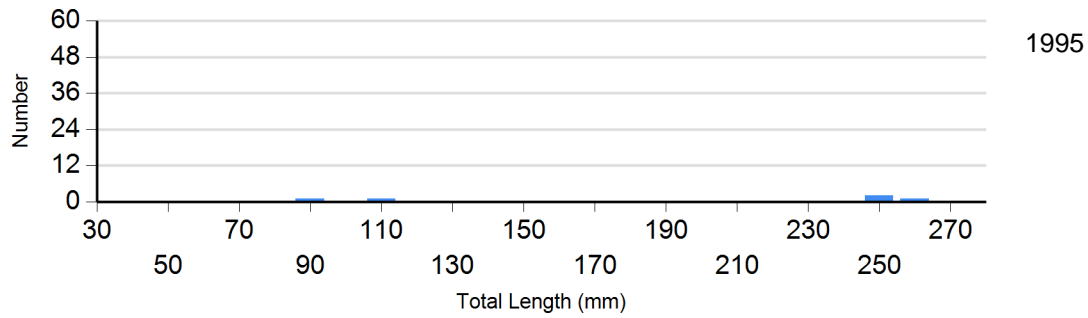
Site: 986
Species: White Sucker



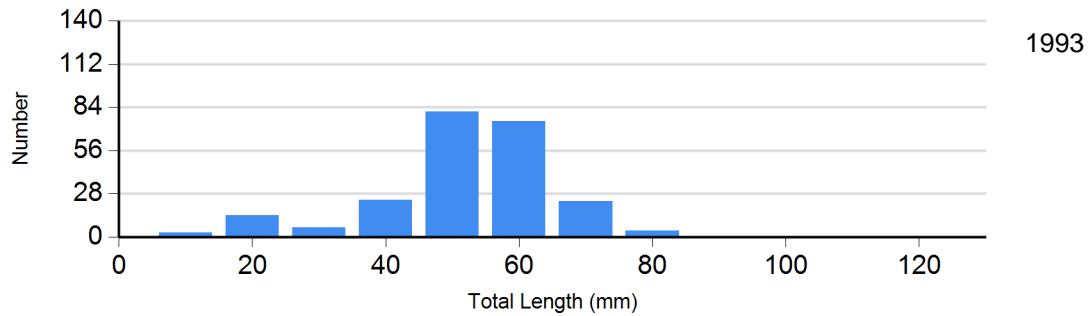
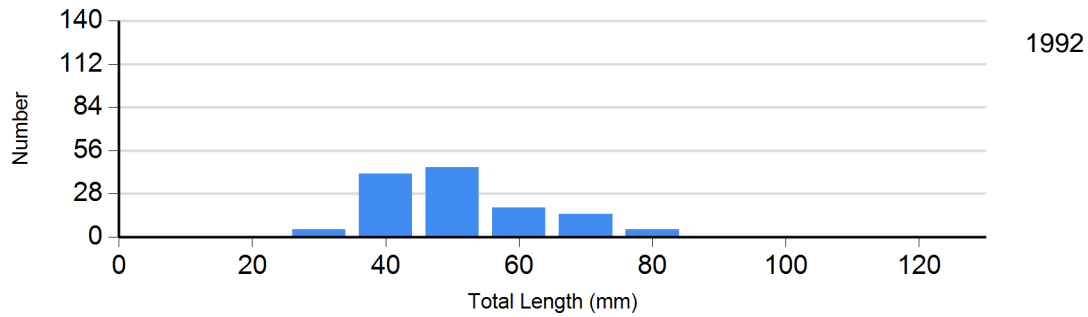


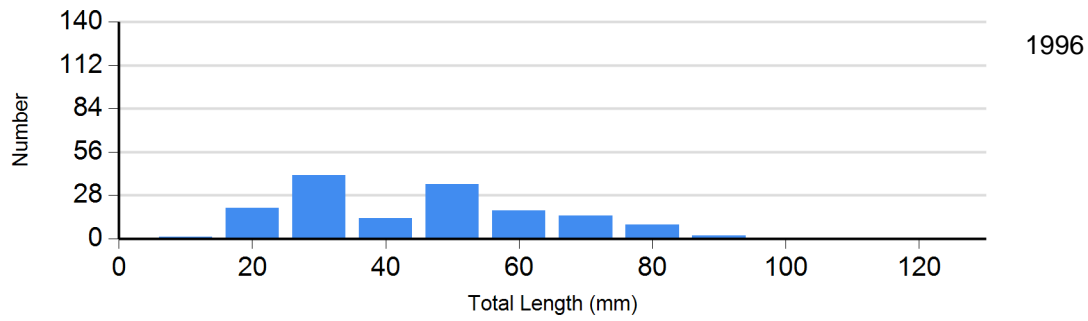
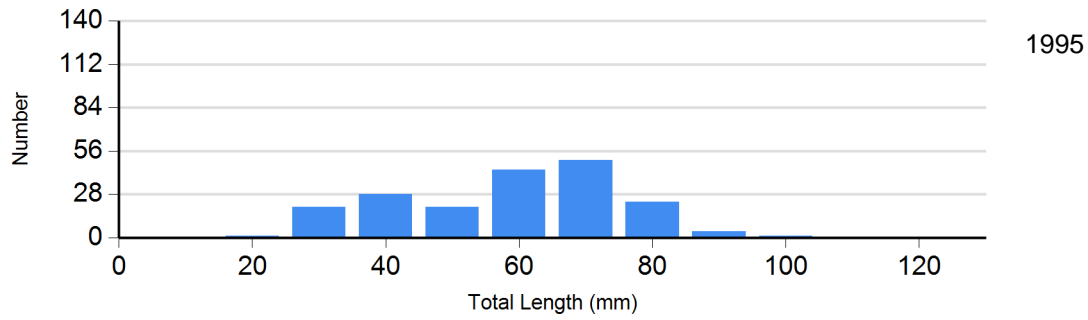
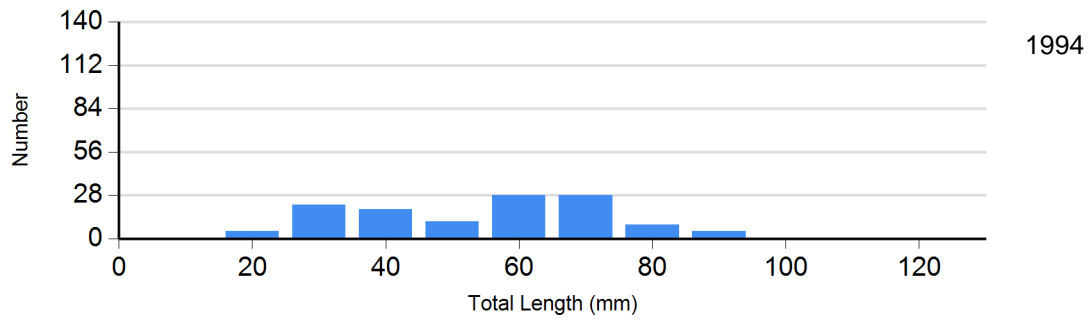
Site: 988
Species: Brook Trout



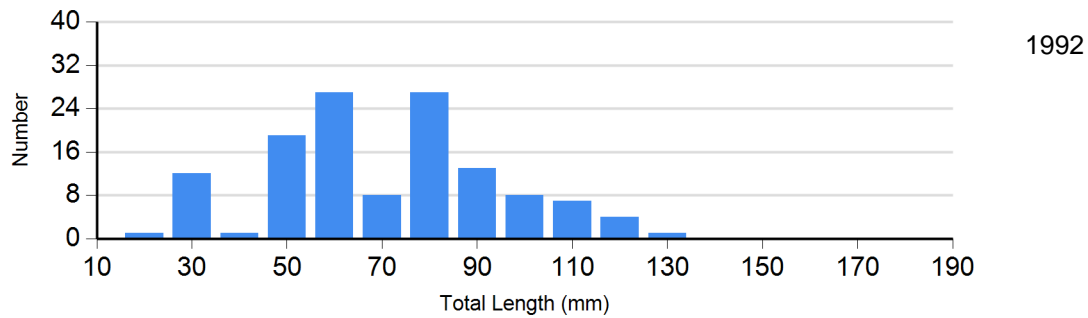


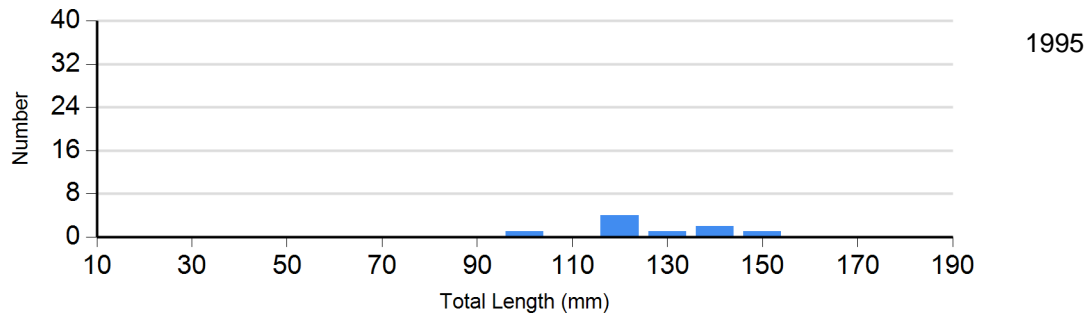
Site: 988
Species: Longnose Dace



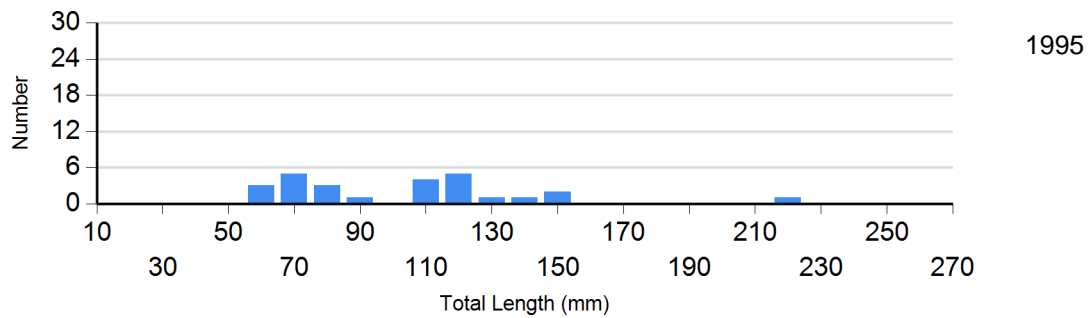
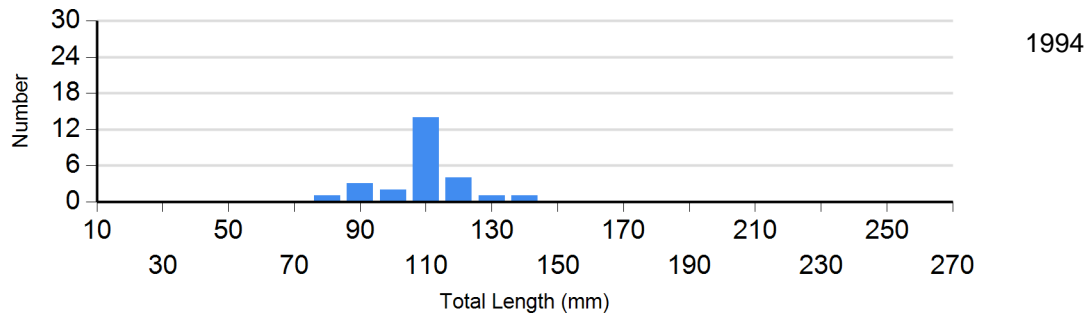
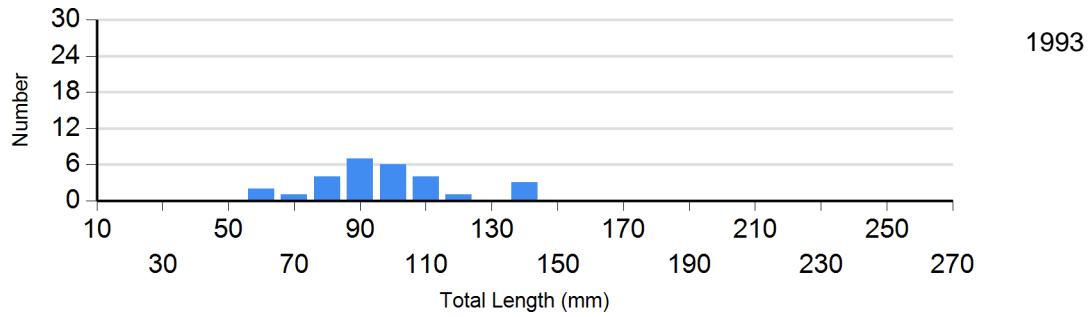


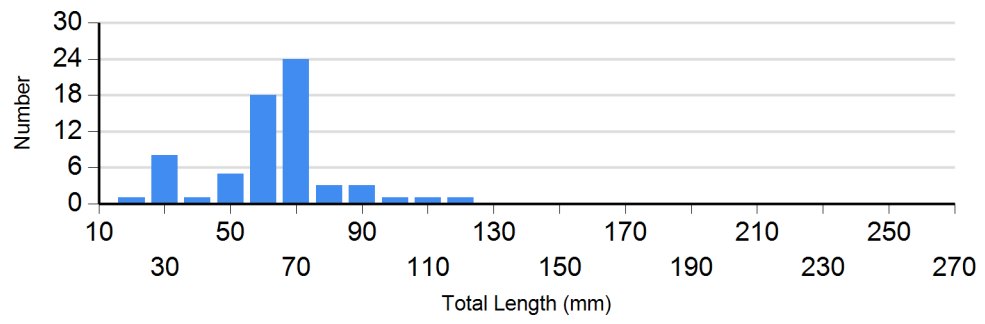
Site: 988
Species: Mountain Sucker





Site: 988
Species: White Sucker





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