

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Bear Butte Creek, Meade County
49-0023-00
2000

Table 1. Population and Biomass Estimates for Bear Butte Creek

Site Number: 951	Date Sampled: 09/11/2000	Conductivity (umhos/cm): 165
Site Midpoint (Latitude, Longitude): 44.33467177, -103.62481850	Site Length (m): 100	pH: 8.6
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 4.1	Water Temperature (C): 11.2
Stream Classification: BK0	Number of Pass: 4	Voltage: 200

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	15	15	15	15	363	3	150	147	2.50	241	89.3	7.7
Brook Trout	All	15	15	15	15	363	3	150	147	2.50	241	89.3	7.7
Mountain Sucker	All	9	9	9	9	218	2	90	88	1.62	145	57.9	8.3
White Sucker	All	73	79	88	73	1910	11	790	774	10.23	1271	49.8	6.0

Site Number: 955	Date Sampled: 09/11/2000	Conductivity (umhos/cm): 201
Site Midpoint (Latitude, Longitude): 44.33484568, -103.62910289	Site Length (m): 100	pH: 8.3
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 3.6	Water Temperature (C): 13.2
Stream Classification: BK2	Number of Pass: 4	Voltage: 200

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	25	25	26	25	696	5	250	282	4.28	402	91.2	6.9
Brook Trout	>=200mm	5	5	5	5	139	21	50	56	18.67	80	235.8	150.2
Brook Trout	All	30	30	31	30	835	26	300	338	22.95	483	115.3	30.8
Longnose Dace	All	6	6	6	6	167	0	60	68	0.30	97	61.8	2.0

Mountain Sucker All 14 18 30 14 501 2 180 203 1.61 290 56.5 3.6

Site Number: 976
Site Midpoint (Latitude, Longitude): 44.32812906, -103.64456485
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK1, RB0

Date Sampled: 09/12/2000
Site Length (m): 100
Mean Width (m): 3.7
Number of Pass: 5
Conductivity (umhos/cm): 1983
pH: 8.3
Water Temperature (C): 16.6
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	42	42	43	42	1132	20	420	459	17.55	676	105.1	17.4
Brook Trout	>=200mm	24	24	24	24	647	90	240	262	80.02	386	231.1	138.5
Brook Trout	All	66	66	67	66	1779	109	660	721	97.57	1062	150.9	61.4
Longnose Dace	All	73	288	982	73	7765	17	2880	3145	15.21	4634	58.0	2.2
Mountain Sucker	All	109	113	119	109	3047	20	1130	1234	17.92	1818	66.6	6.6
Rainbow Trout	<200mm	21	21	22	21	566	3	210	229	3.01	338	79.0	6.0
Rainbow Trout	All	21	21	22	21	566	3	210	229	3.01	338	79.0	6.0
White Sucker	All	37	42	51	37	1132	5	420	459	4.45	676	47.6	4.4

Site Number: 977
Site Midpoint (Latitude, Longitude): 44.32765077, -103.64555220
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK2, RB0

Date Sampled: 09/12/2000
Site Length (m): 100
Mean Width (m): 3.8
Number of Pass: 4
Conductivity (umhos/cm): 2050
pH: 8.4
Water Temperature (C): 16.8
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	32	37	30	834	8	320	338	7.35	515	89.1	9.9
Brook Trout	>=200mm	8	8	8	8	209	24	80	84	21.71	129	220.0	116.6

Brook Trout	All	38	39	42	38	1017	33	390	412	29.36	628	116.6	32.3
Longnose Dace	All	42	56	80	42	1460	3	560	591	2.46	901	58.0	1.9
Mountain Sucker	All	36	38	43	36	991	6	380	401	4.93	611	75.7	5.6
Rainbow Trout	<200mm	26	26	27	26	678	3	260	274	3.12	418	75.6	5.2
Rainbow Trout	All	26	26	27	26	678	3	260	274	3.12	418	75.6	5.2
White Sucker	All	11	11	12	11	287	1	110	116	0.82	177	53.4	3.2

Site Number: 985

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK1

Date Sampled: 09/13/2000

Site Length (m): 100

Mean Width (m): 3.0

Number of Pass: 4

Conductivity (umhos/cm):

pH: 8.4

Water Temperature (C):

Voltage: 200

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	100	101	100	3343	63	1000	1354	56.09	1609	106.4	18.8
Brook Trout	>=200mm	27	27	27	27	903	97	270	366	86.57	434	216.0	107.4
Brook Trout	All	127	127	128	127	4246	160	1270	1720	142.67	2043	129.7	37.6
Longnose Dace	All	296	334	358	310	11167	41	3340	4523	36.53	5374	69.2	3.7
Mountain Sucker	All	163	168	174	163	5617	34	1680	2275	29.95	2703	80.6	6.0

Site Number: 988

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK0

Date Sampled: 09/13/2000

Site Length (m): 100

Mean Width (m): 3.8

Number of Pass: 4

Conductivity (umhos/cm):

pH: 8.4

Water Temperature (C): 21.0

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	32	32	33	32	848	10	320	344	9.06	515	95.9	12.0
Brook Trout	All	32	32	33	32	848	10	320	344	9.06	515	95.9	12.0
Longnose Dace	All	1251	1289	1305	1273	34166	125	12890	13837	111.86	20740	50.8	3.7
Mountain Sucker	All	115	119	125	115	3154	16	1190	1277	14.64	1915	58.4	5.2
White Sucker	All	1	1	1	1	27	0	10	11	0.14	16	84.0	6.0

Site Number: 992

Site Midpoint (Latitude, Longitude): 44.32169898, -103.65235596

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK1

Date Sampled: 09/14/2000

Site Length (m): 100

Mean Width (m): 3.0

Number of Pass: 5

Conductivity (umhos/cm): 220

pH: 8.6

Water Temperature (C): 16.5

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	90	90	91	90	2964	85	900	1200	75.53	1448	137.0	28.5
Brook Trout	>=200mm	50	50	50	50	1647	219	500	667	195.26	805	239.2	132.8
Brook Trout	All	141	141	142	141	4644	307	1410	1881	273.83	2269	173.5	66.0
Longnose Dace	All	714	1089	1249	929	35865	151	10890	14525	135.12	17522	75.3	4.2
Mountain Sucker	All	120	123	128	120	4051	93	1230	1641	82.81	1979	116.6	22.9
White Sucker	All	15	15	16	15	494	79	150	200	70.17	241	212.9	159.1

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, 1990-2000

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	
	Sep 11, 2000	15	15-15	
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
	Sep 11, 2000	9	9-9
White Sucker	Sep 13, 1999	7	7-9
	Sep 11, 2000	79	73-88

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	
	Sep 23, 1996	9	9-10	
	Sep 10, 1997	6	6-7	
	Sep 16, 1998	4	4-4	
	Sep 15, 1999	5	5-5	
	Sep 11, 2000	25	25-26	
Brook Trout >=200mm	Sep 09, 1992	2	2-2	BK3
	Sep 10, 1997	14	14-16	BK2
	Sep 16, 1998	2	2-2	BK3

Brook Trout >=200mm	Sep 11, 2000	5	5-5	BK2
Longnose Dace	Sep 09, 1992	521	449-593	
	Sep 10, 1997	21	21-22	
	Sep 11, 2000	6	6-6	
Mountain Sucker	Sep 09, 1992	82	77-90	
	Sep 10, 1997	8	8-8	
	Sep 16, 1998	5	5-6	
	Sep 15, 1999	3	3-3	
	Sep 11, 2000	18	14-30	
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	

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	
	Sep 09, 1997	1	1-1	
	Sep 13, 1999	6	6-6	
	Sep 12, 2000	42	42-43	
Brook Trout >=200mm	Sep 20, 1994	1	1-1	BK3
	Sep 09, 1997	2	2-3	BK3
	Sep 13, 1999	1	1-1	BK3
	Sep 12, 2000	24	24-24	BK1
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	
	Sep 12, 2000	288	73-982	

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	
	Sep 12, 2000	113	109-119	
Rainbow Trout <200mm	Apr 16, 1993	1	1-3	
	Jun 10, 1993	1	1-1	
	Sep 12, 2000	21	21-22	
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	
	Sep 09, 1997	11	11-13	
	Sep 14, 1998	1	1-3	
	Sep 13, 1999	7	7-8	
	Sep 12, 2000	42	37-51	

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
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	
	Sep 12, 2000	32	30-37	
Brook Trout >=200mm	Sep 09, 1997	5	5-5	BK2
	Sep 12, 2000	8	8-8	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	
	Sep 12, 2000	56	42-80	
Mountain Sucker	Apr 16, 1993	16	13-26	
	Sep 09, 1997	28	21-45	

Mountain Sucker	Sep 12, 2000	38	36-43	
Rainbow Trout <200mm	Jun 10, 1993	1	1-1	
	Sep 12, 2000	26	26-27	
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	
	Sep 12, 2000	11	11-12	

Site 985

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Nov 04, 1997	5	5-5	

Brook Trout <200mm	Sep 14, 1999	64	64-66	
	Sep 13, 2000	100	100-101	
Brook Trout >=200mm	Sep 08, 1997	1	1-1	BK3
	Nov 04, 1997	2	2-6	BK2
	Sep 14, 1999	11	11-11	BK2
	Sep 13, 2000	27	27-27	BK1
Longnose Dace	Sep 08, 1997	33	32-36	
	Nov 04, 1997	10	11-13	
	Sep 14, 1999	32	33-46	
	Sep 13, 2000	334	310-358	
Mountain Sucker	Sep 08, 1997	87	86-90	
	Nov 04, 1997	257	143-386	
	Sep 14, 1999	3	3-3	
	Sep 13, 2000	168	163-174	
White Sucker	Sep 08, 1997	20	20-21	
	Nov 04, 1997	5	3-24	

White Sucker	Sep 16, 1998	2	2-2
	Sep 14, 1999	4	4-7

Site 988

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
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	
	Sep 13, 2000	32	32-33	
Brook Trout >=200mm	May 10, 1993	1	1-4	BK3

Brook Trout >=200mm	Jun 06, 1995	2	2-3	BK3
	Sep 18, 1995	1	1-5	BK3
	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	

Longnose Dace	Sep 13, 2000	1289	1273-1305	
Mountain Sucker	Jun 06, 1995	14	6-73	
	Sep 18, 1995	3	3-3	
	Jul 14, 1997	15	16-21	
	Sep 09, 1997	146	125-167	
	Nov 04, 1997	12	12-14	
	Sep 14, 1998	43	39-51	
	Sep 13, 2000	119	115-125	
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	

White Sucker	Sep 21, 1996	70	66-77
	Jul 14, 1997	13	12-18
	Sep 09, 1997	13	13-13
	Nov 04, 1997	81	72-93
	Sep 14, 1998	31	23-50
	Sep 16, 1999	22	21-26
	Sep 13, 2000	1	1-1

Site 992

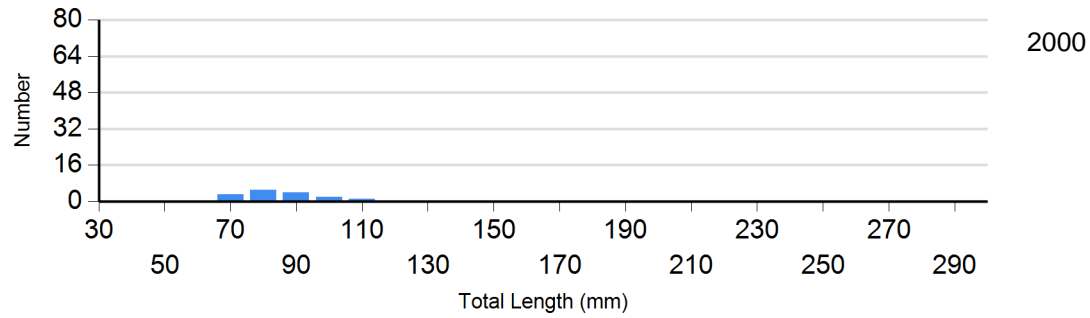
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Brook Trout <200mm	Sep 14, 2000	90	90-91	
Brook Trout >=200mm	Sep 14, 2000	50	50-50	BK1
Longnose Dace	Sep 14, 2000	1089	929-1249	
Mountain Sucker	Sep 14, 2000	123	120-128	
White Sucker	Sep 14, 2000	15	15-16	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

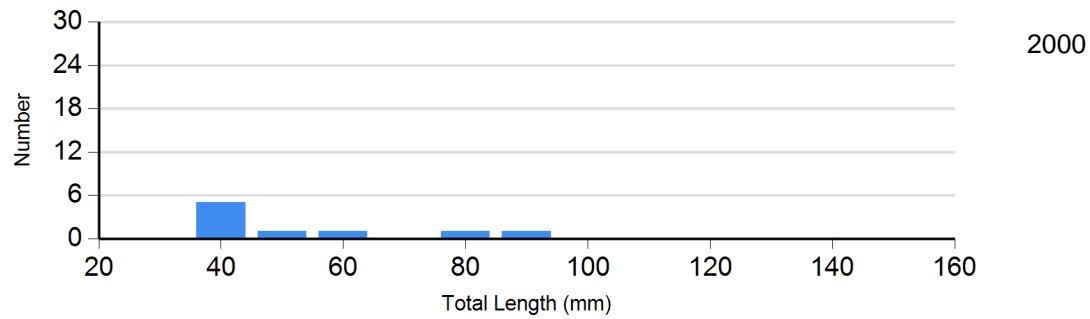
Site: 951

Species: Brook Trout



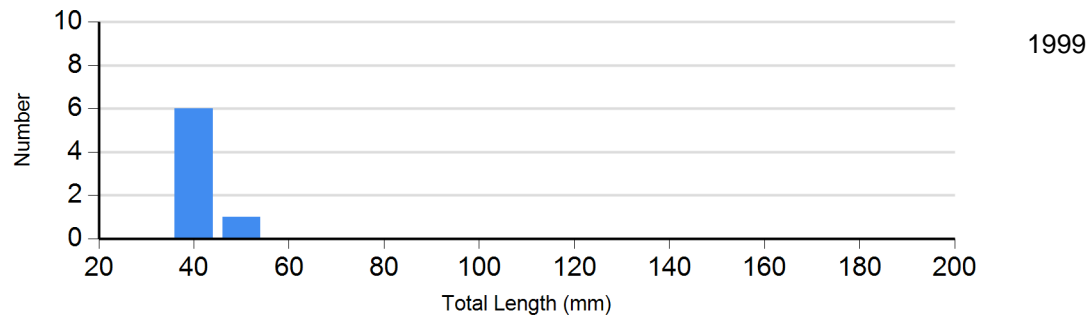
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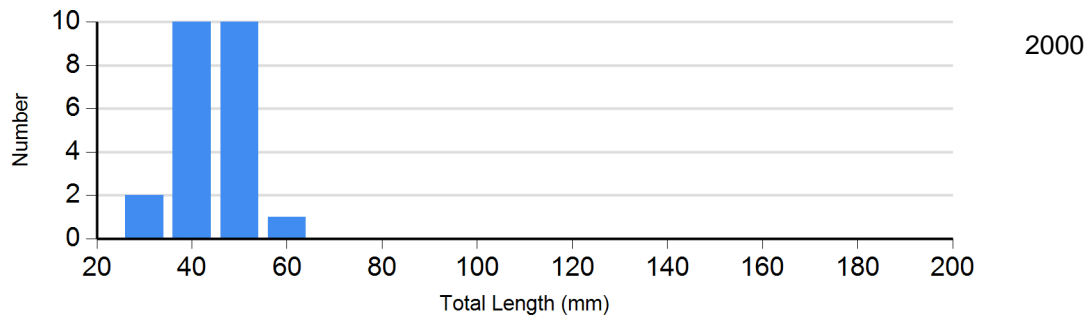
Species: Mountain Sucker



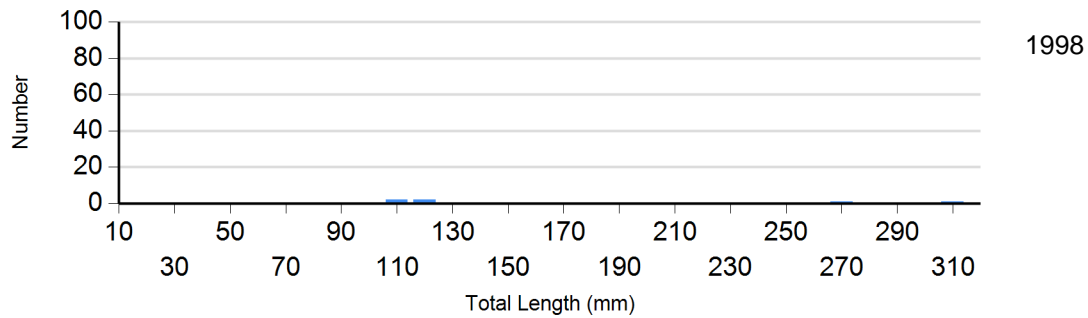
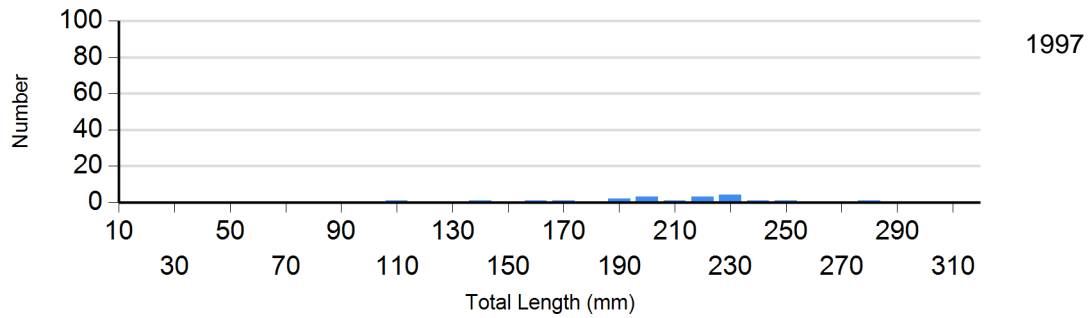
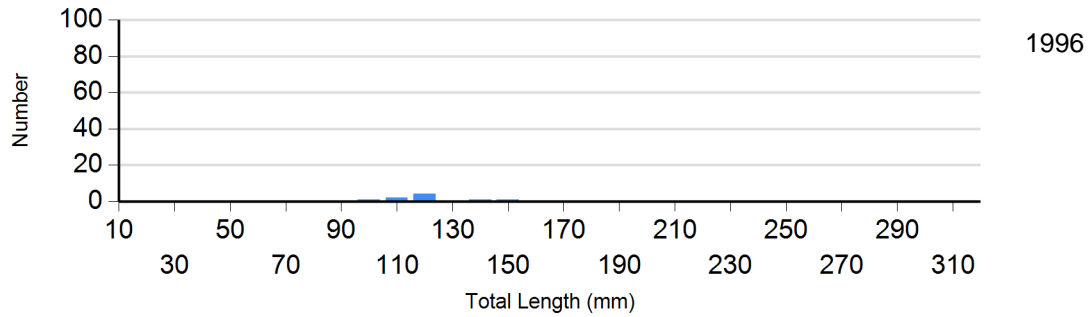
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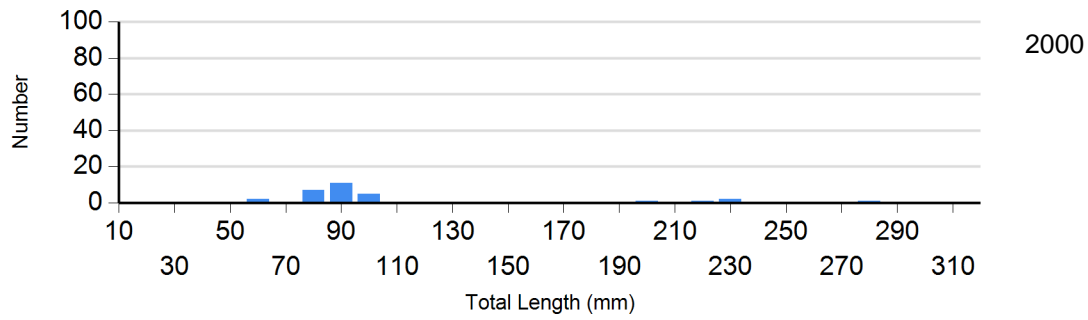
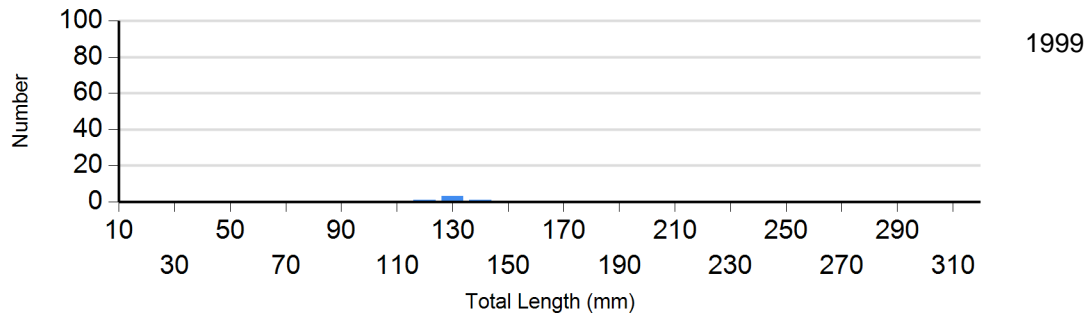
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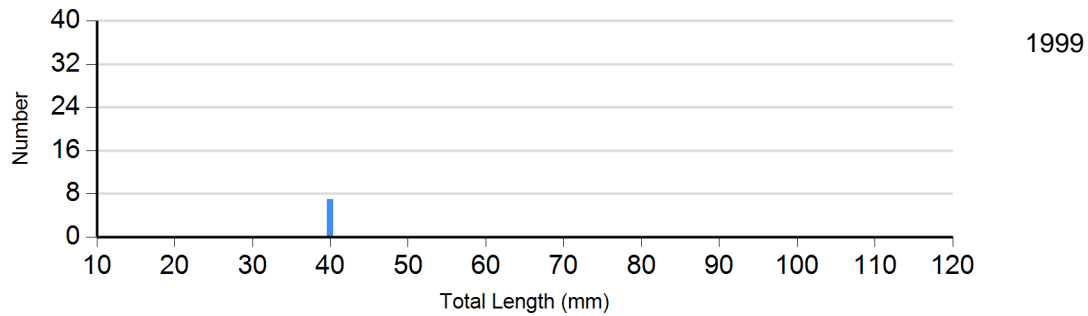
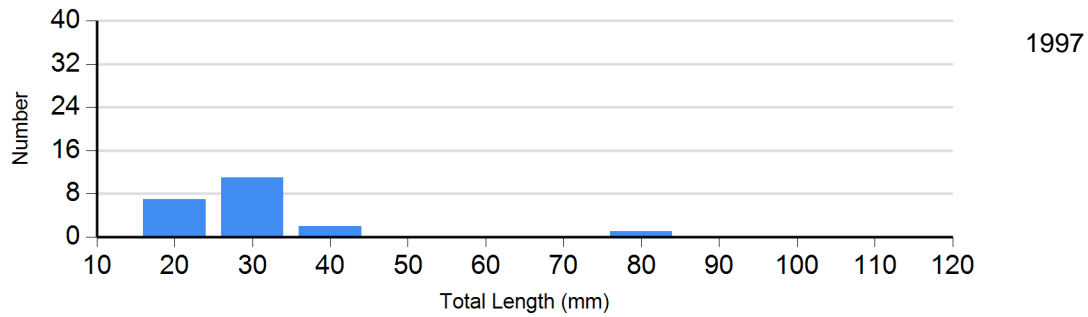


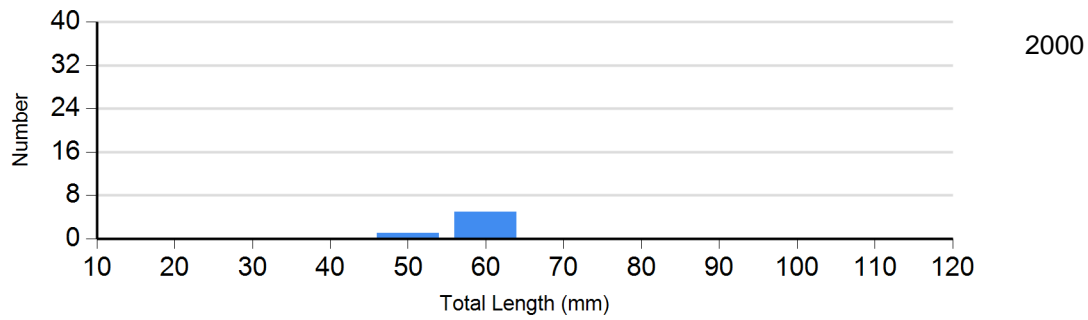
Site: 955
Species: Brook Trout



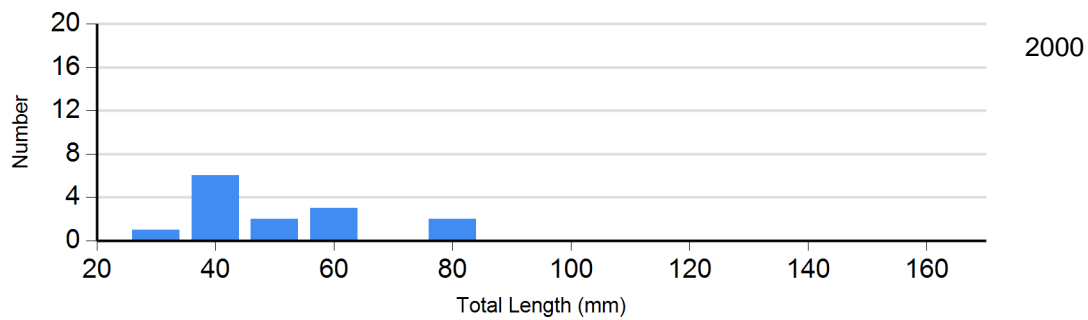
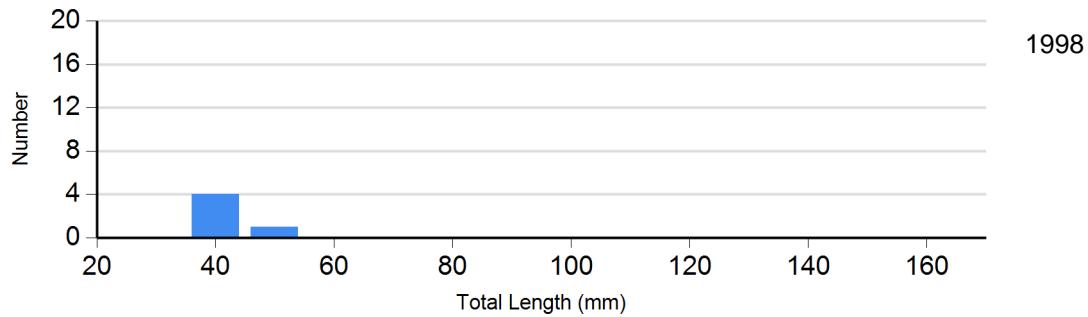
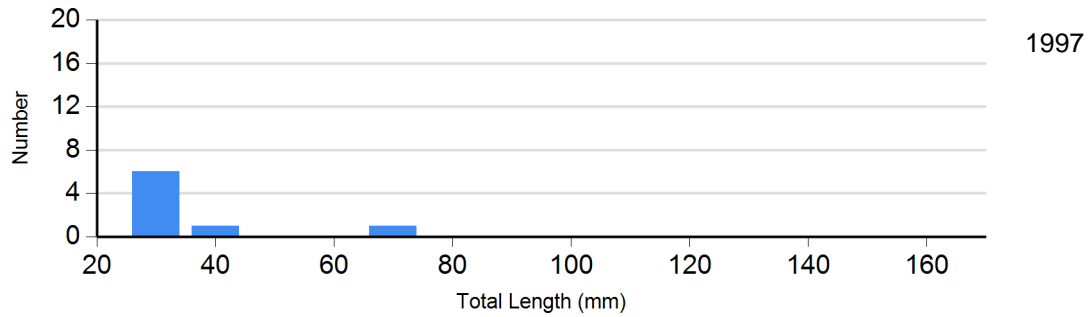


Site: 955
Species: Longnose Dace

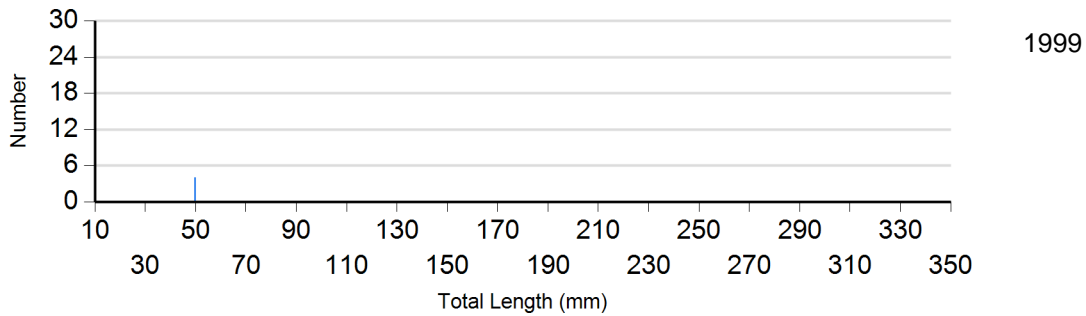
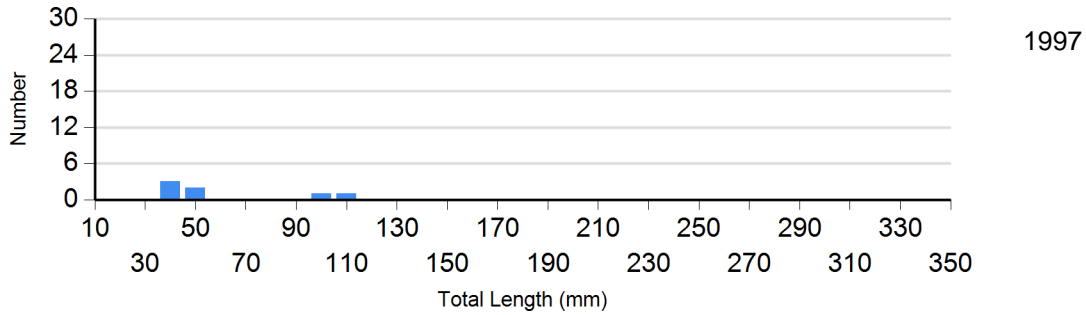
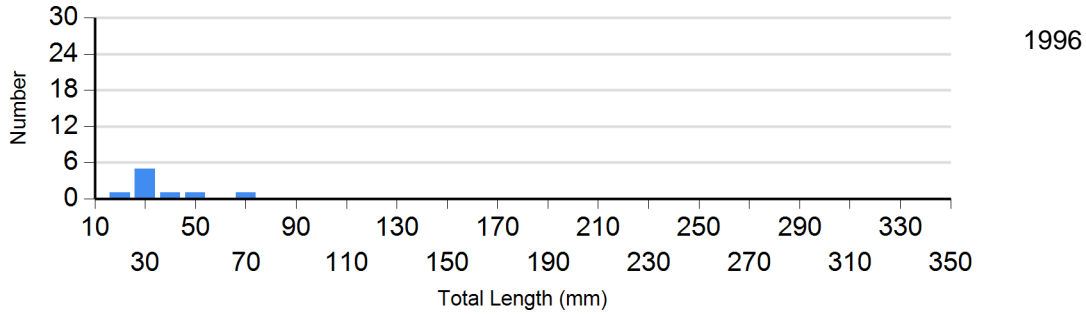
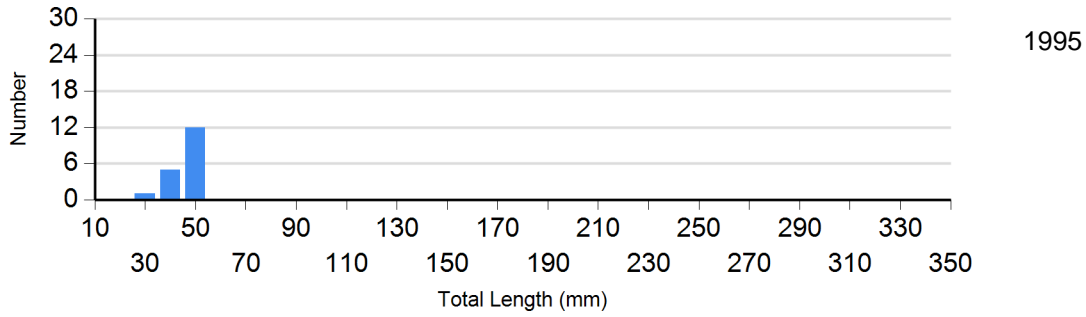


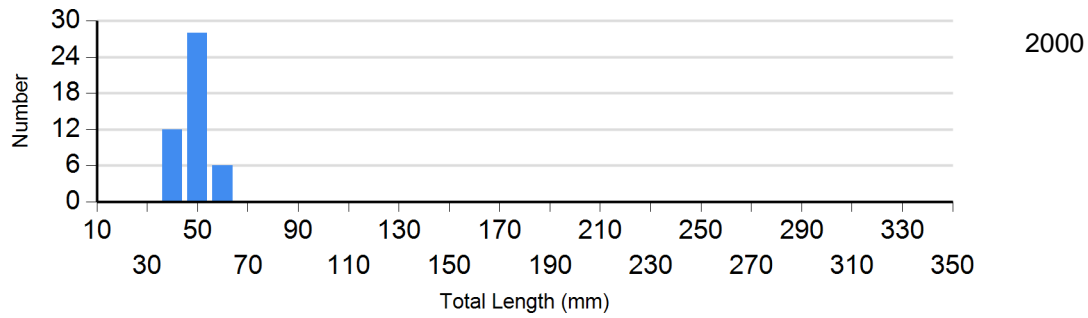


Site: 955
Species: Mountain Sucker

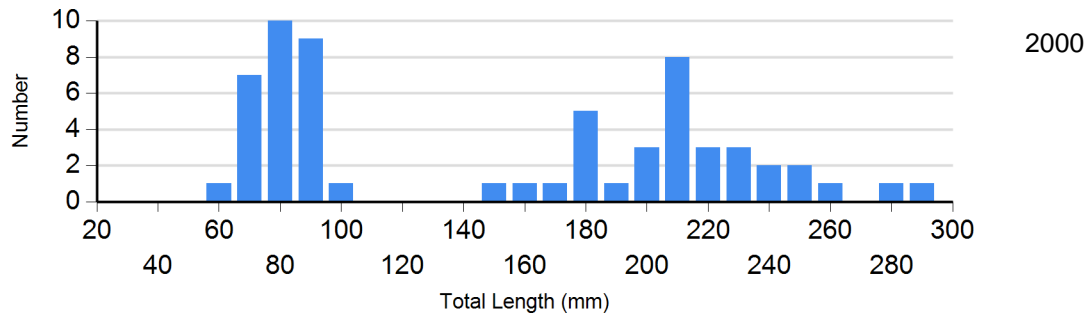
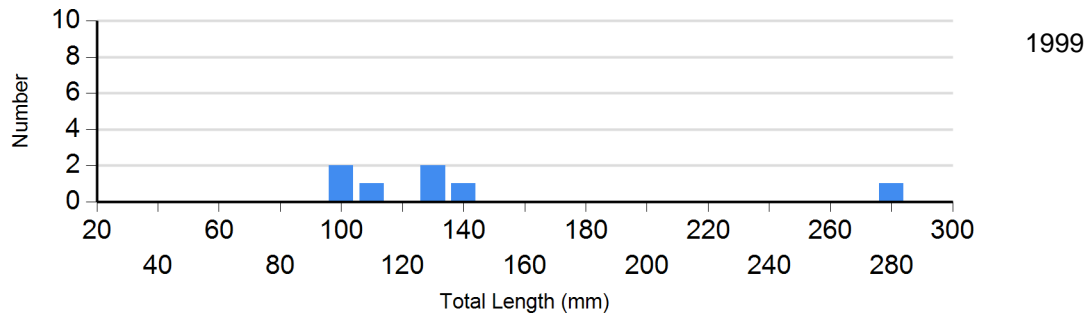
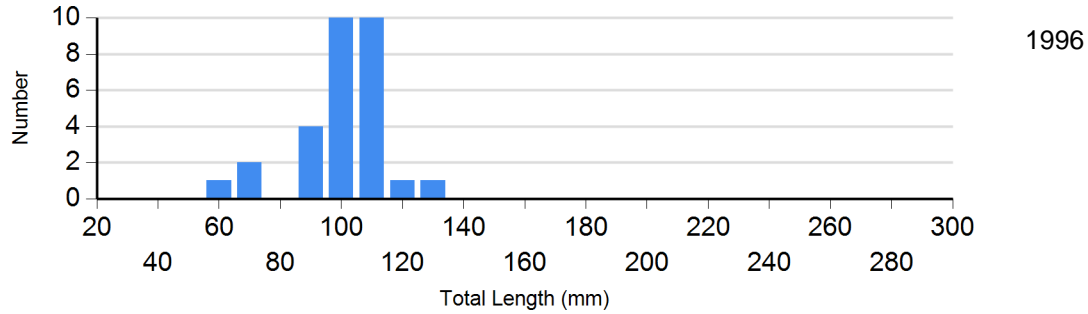


Site: 955
Species: White Sucker

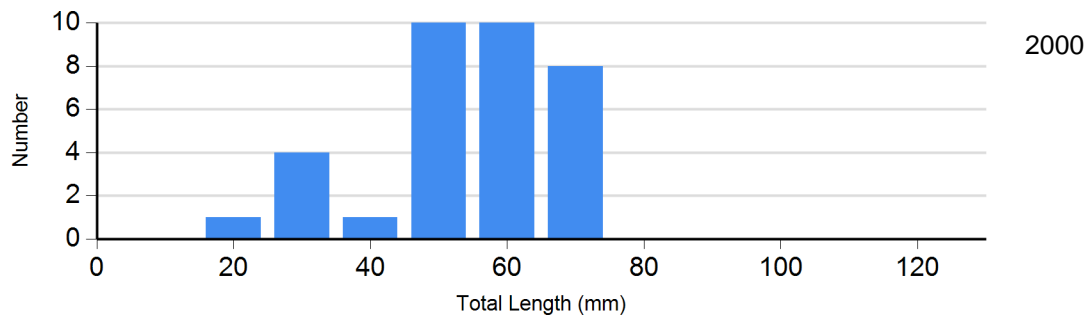
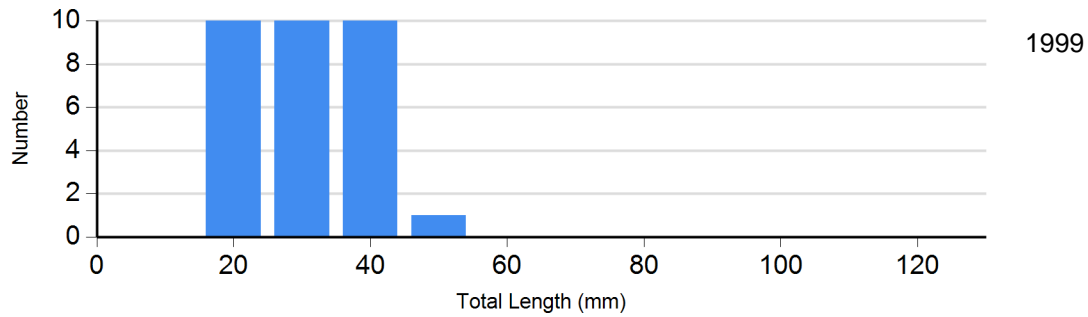
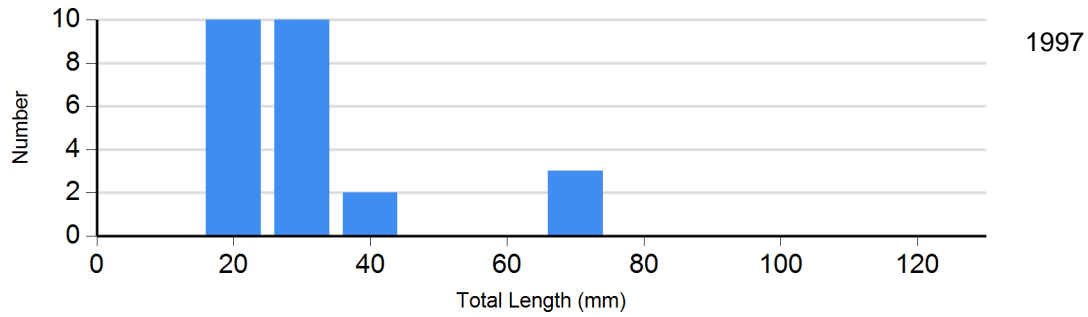
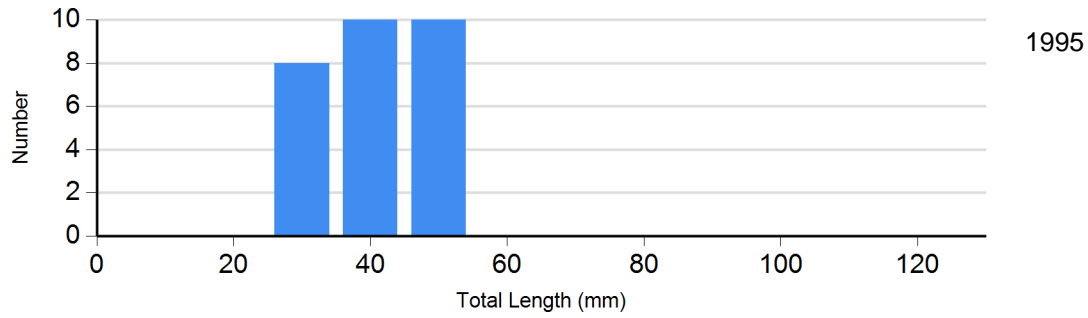




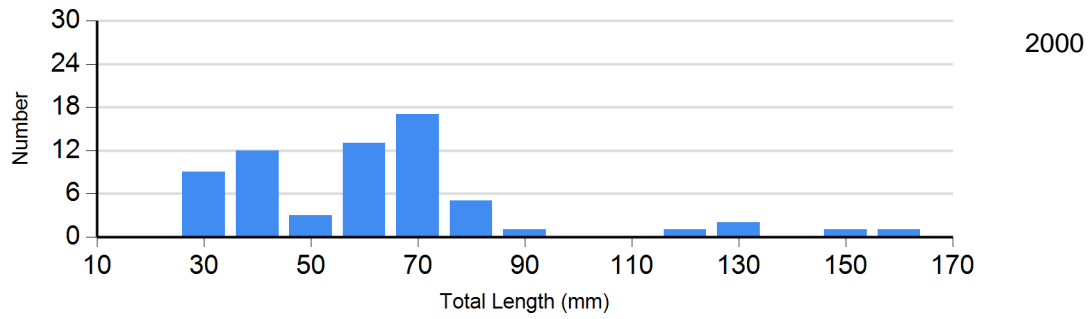
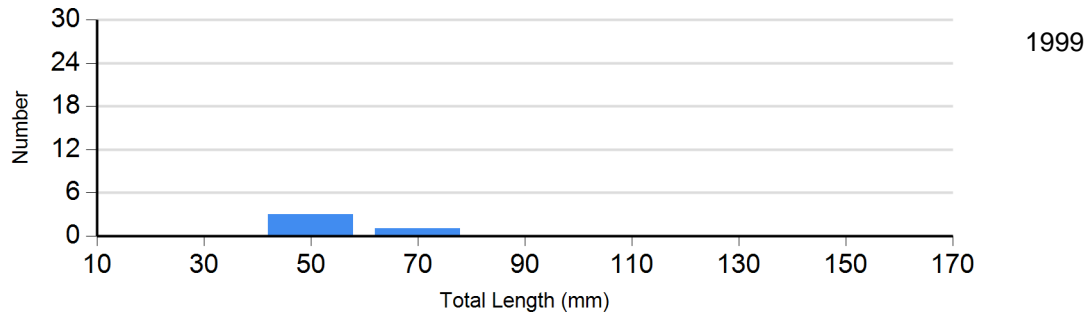
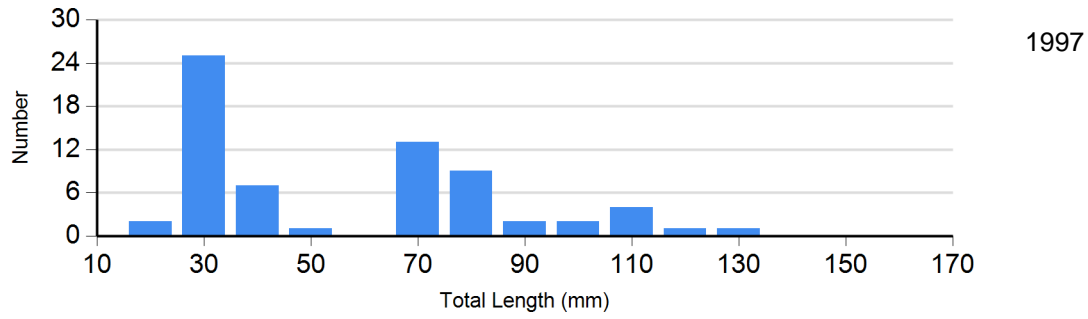
Site: 976
Species: Brook Trout



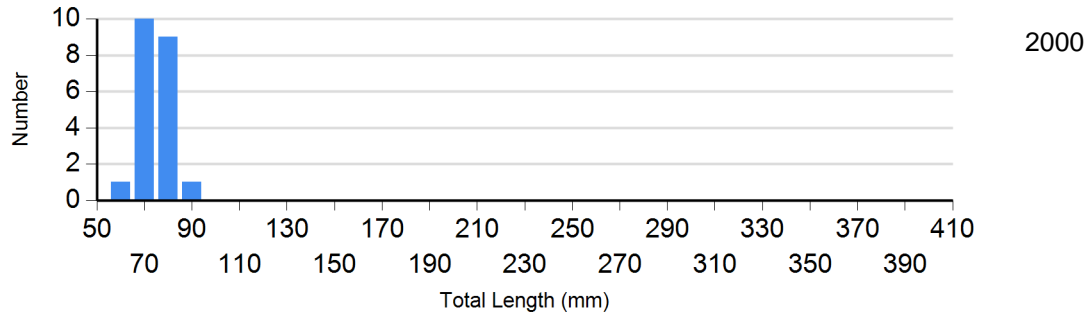
Site: 976
Species: Longnose Dace



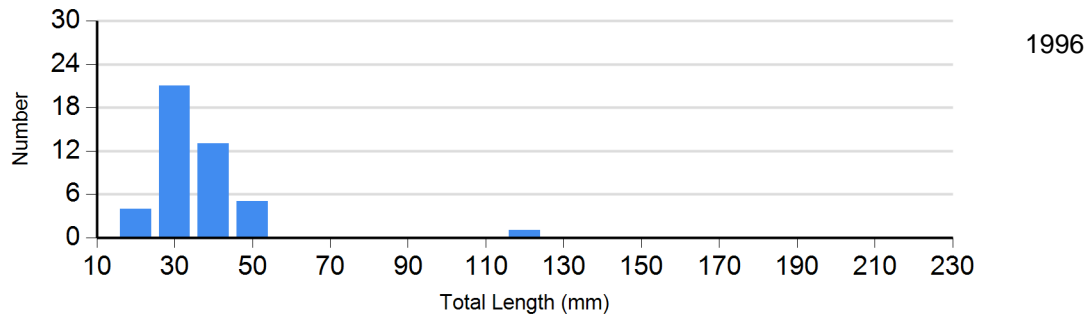
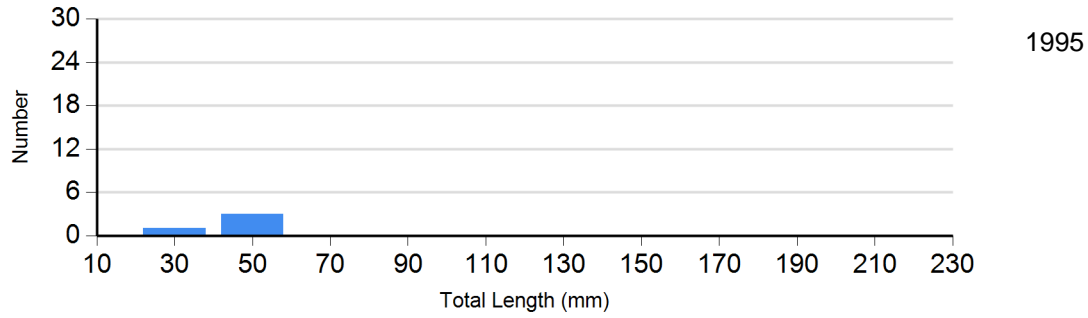
Site: 976
Species: Mountain Sucker

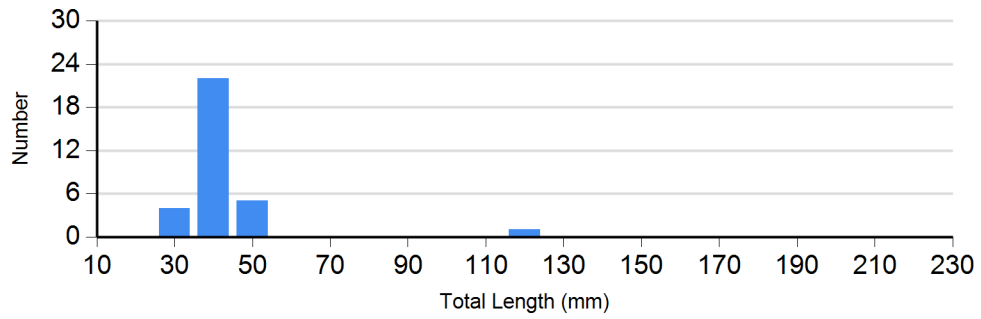
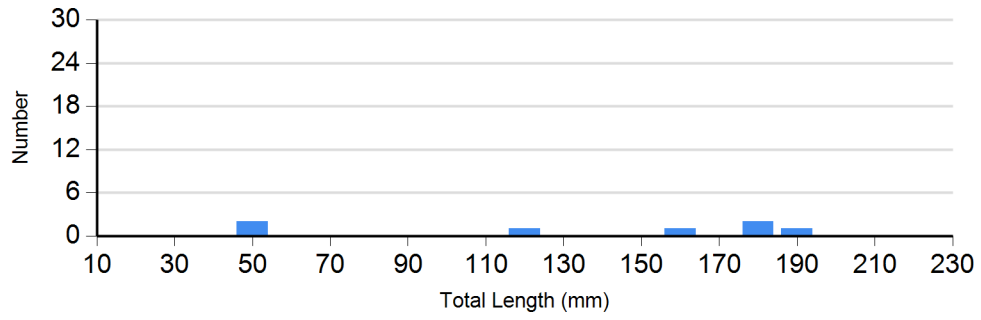
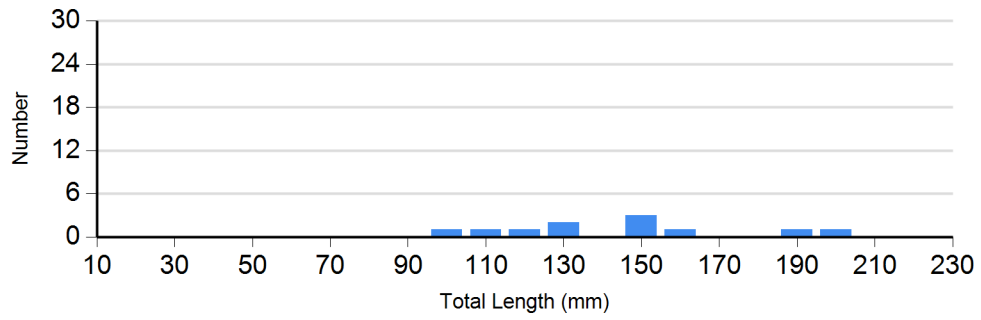


Site: 976
Species: Rainbow Trout

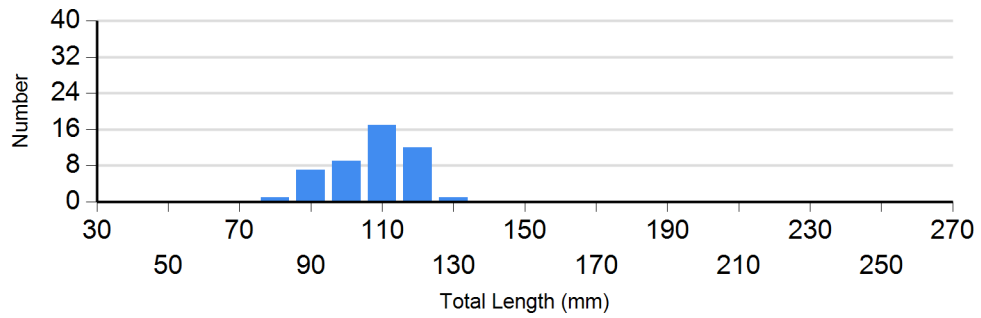


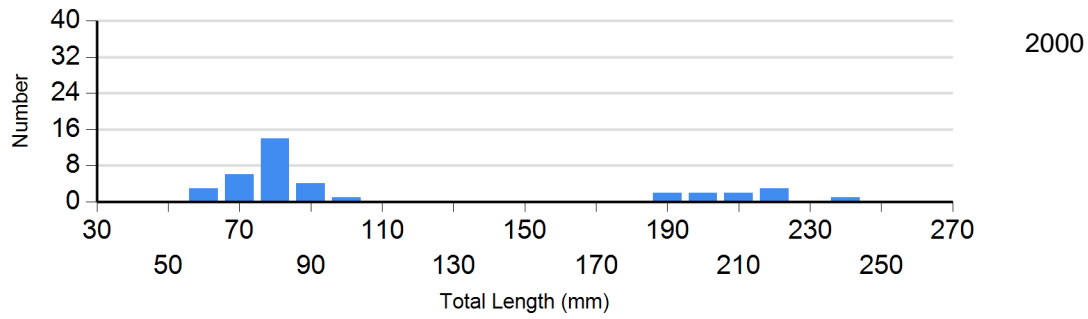
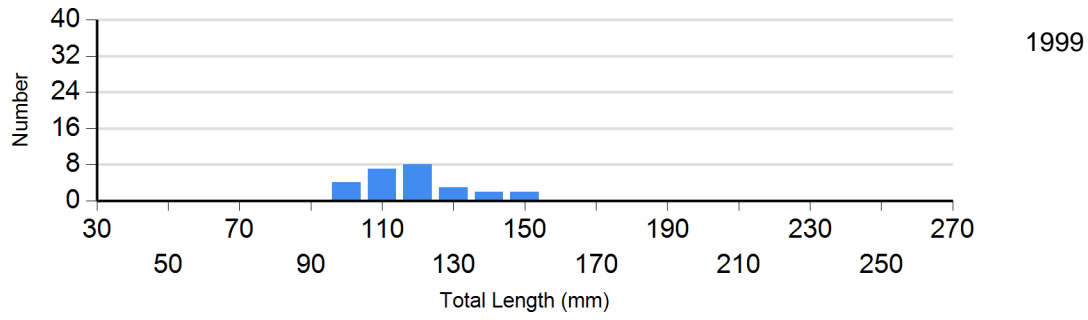
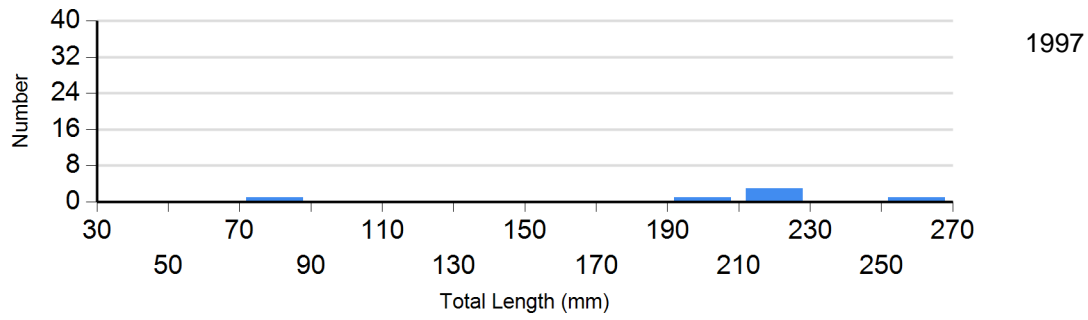
Site: 976
Species: White Sucker



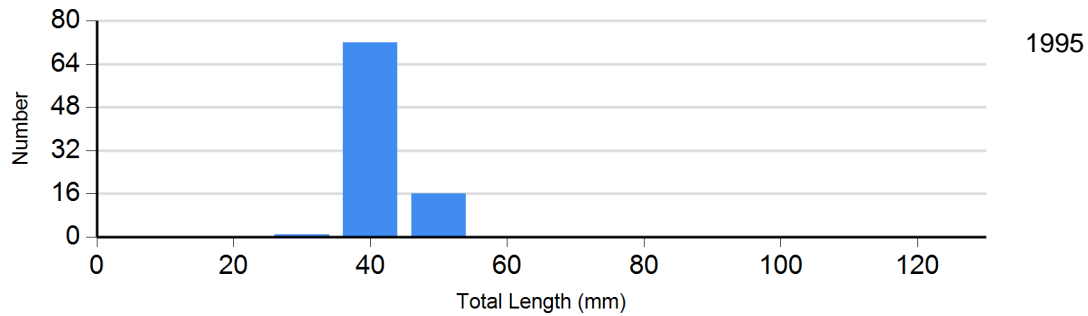


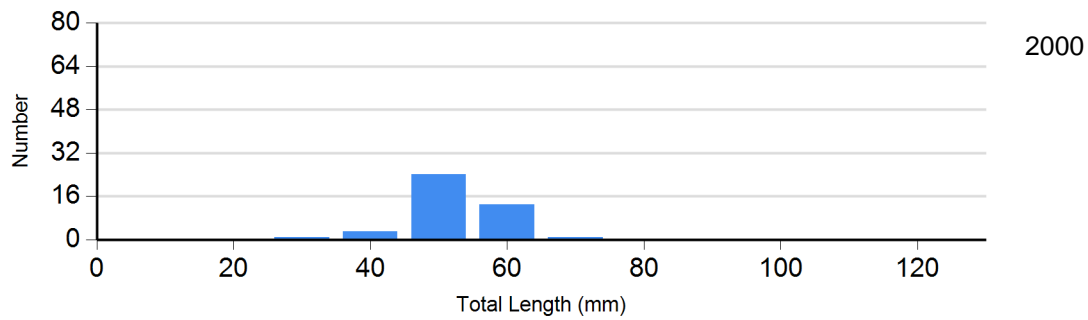
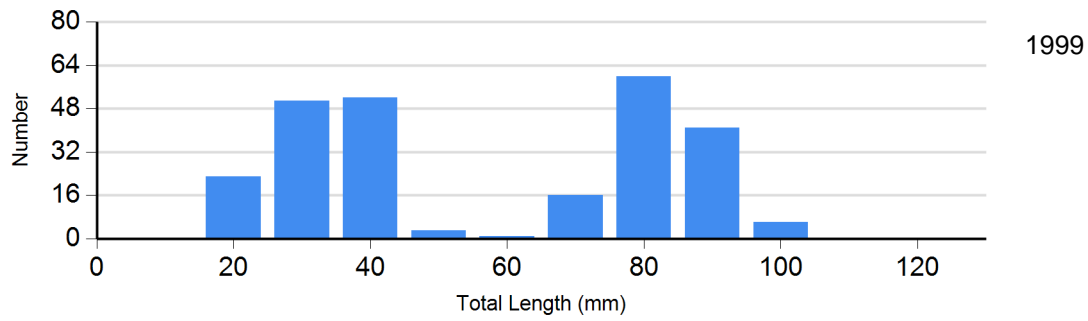
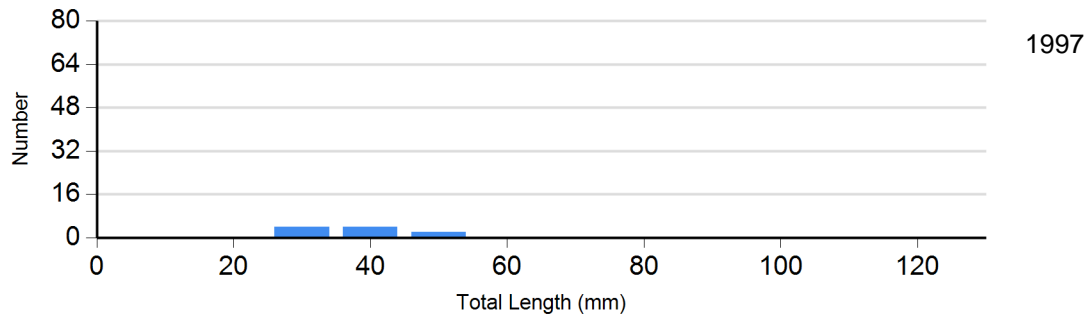
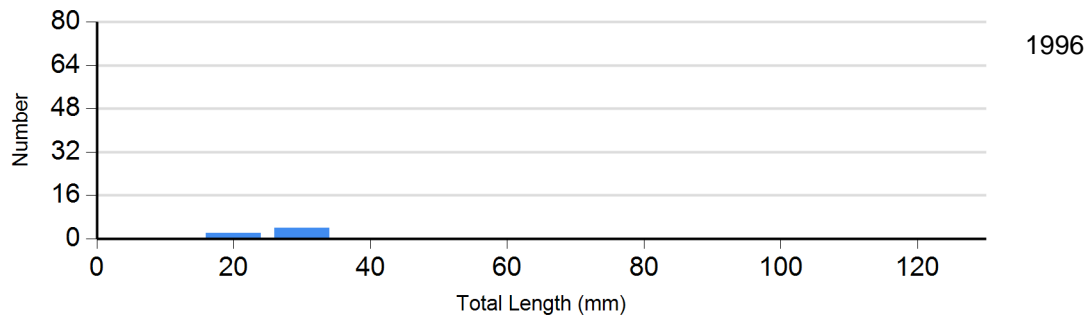
Site: 977
Species: Brook Trout



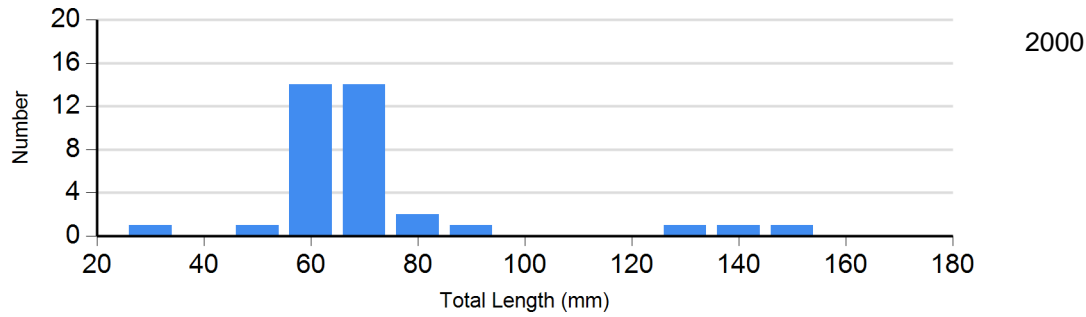
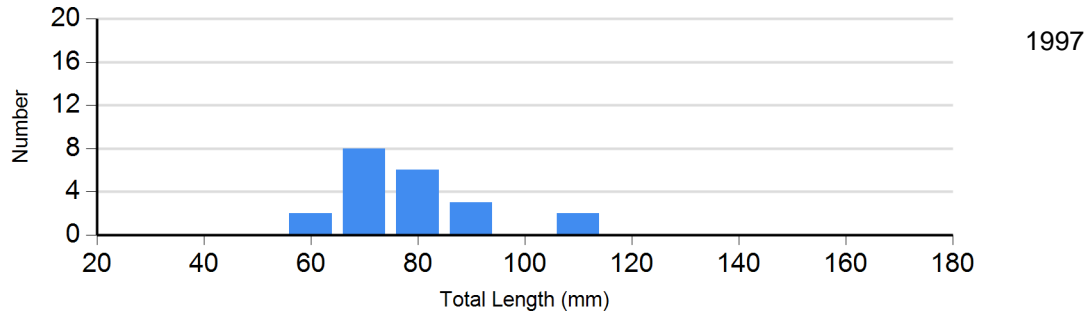


Site: 977
Species: Longnose Dace

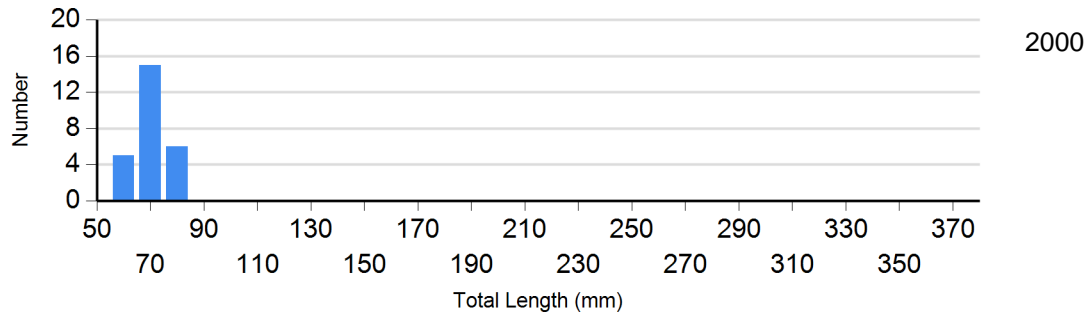




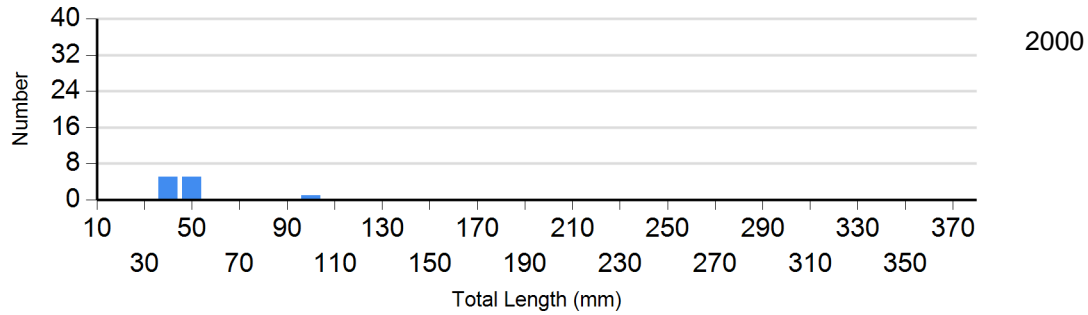
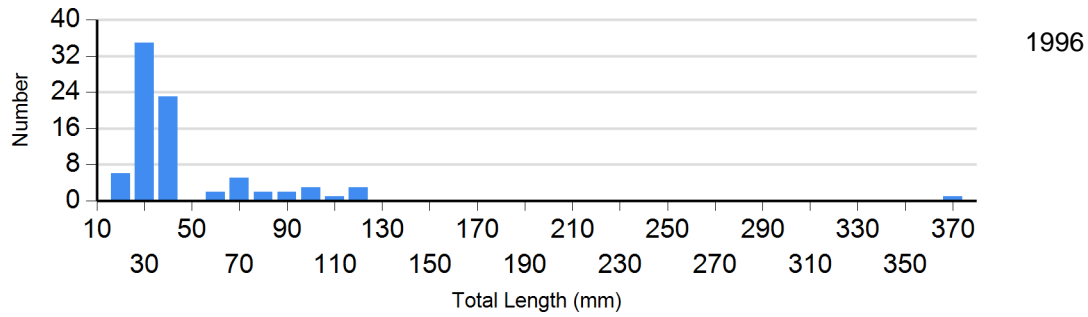
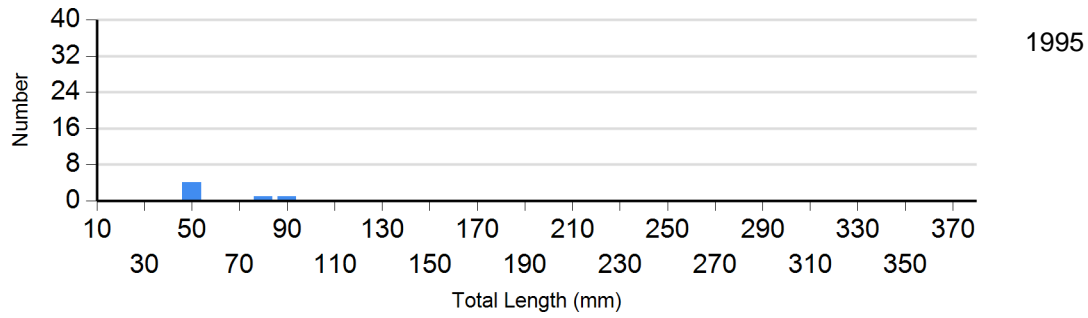
Site: 977
Species: Mountain Sucker



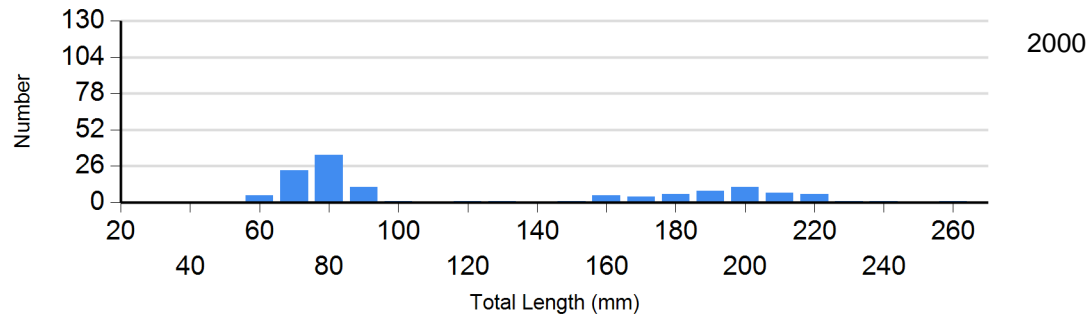
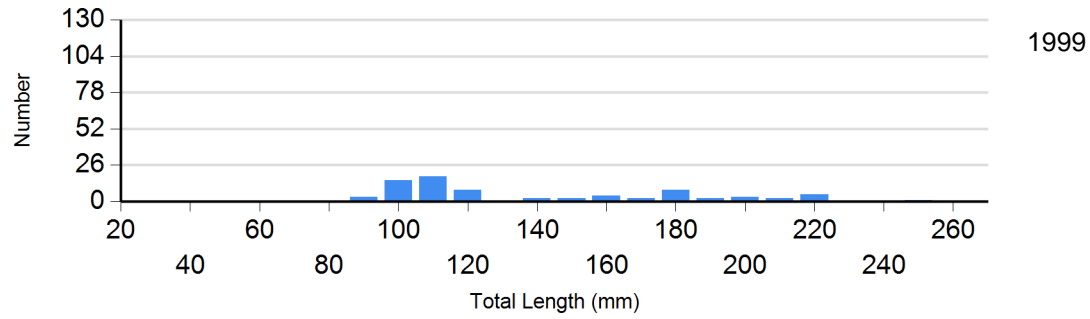
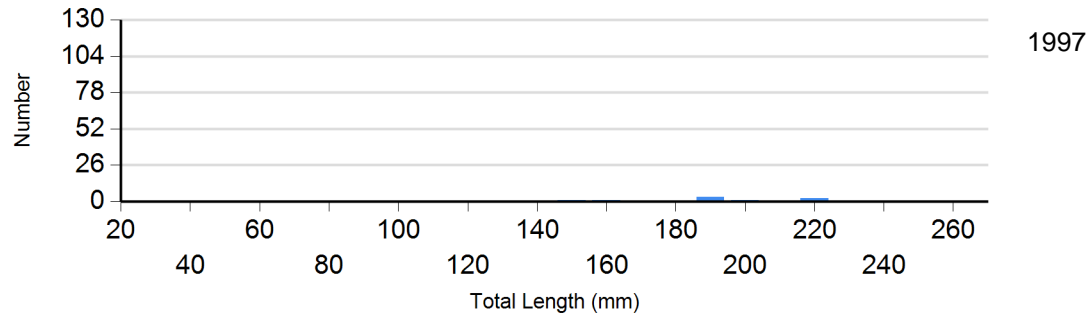
Site: 977
Species: Rainbow Trout



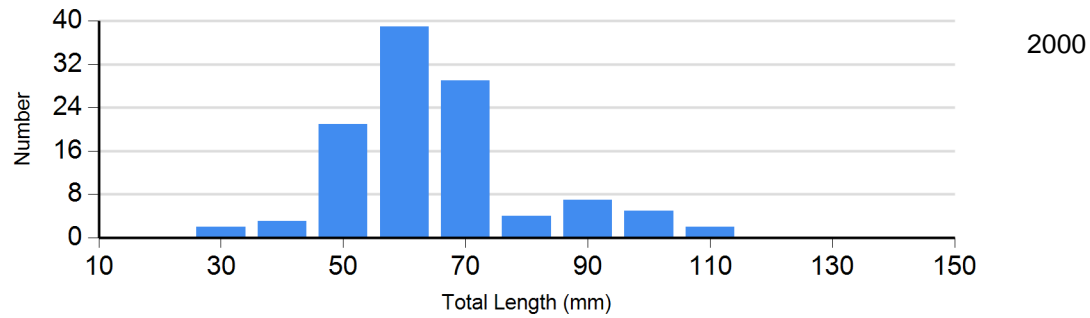
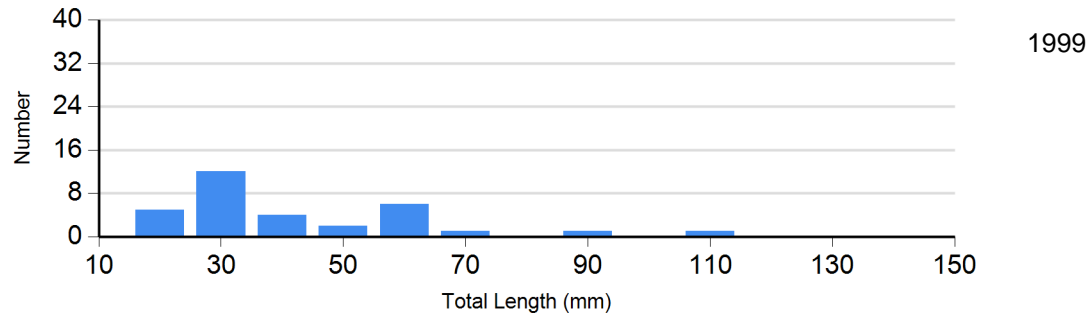
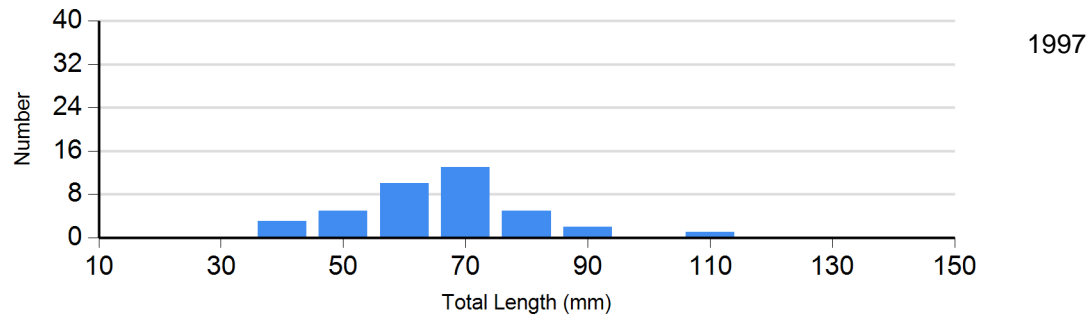
Site: 977
Species: White Sucker



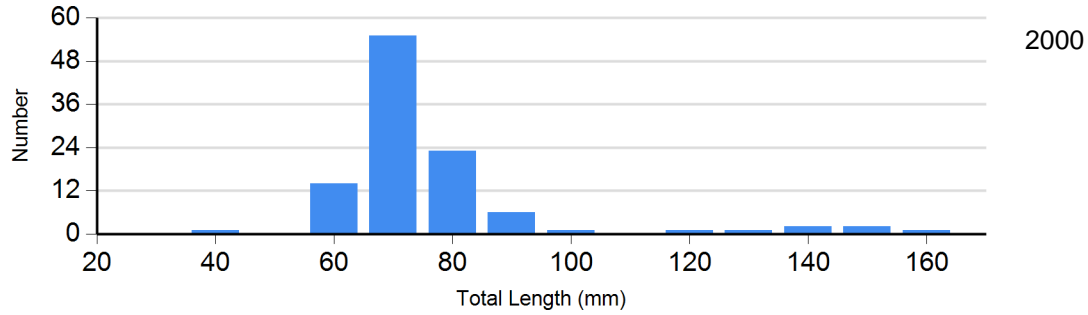
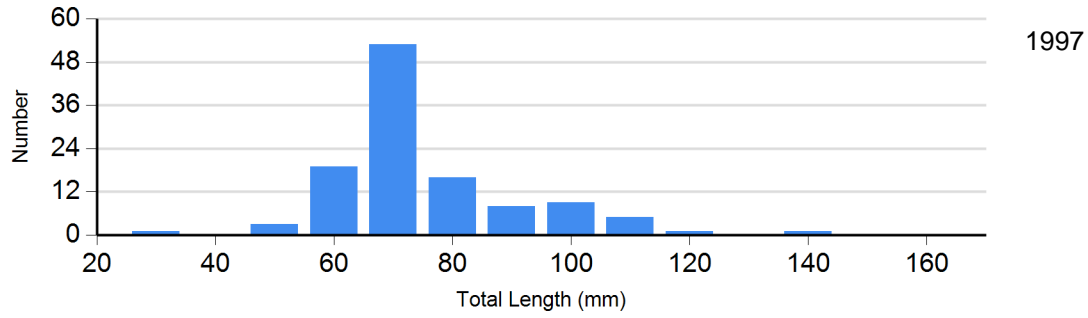
Site: 985
Species: Brook Trout



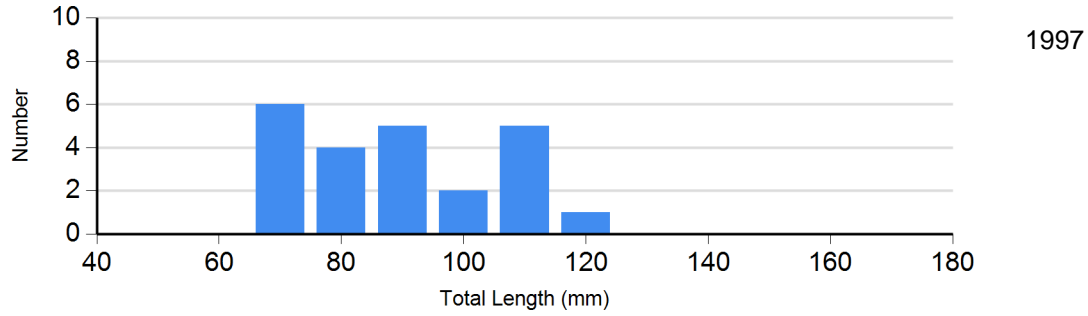
Site: 985
Species: Longnose Dace

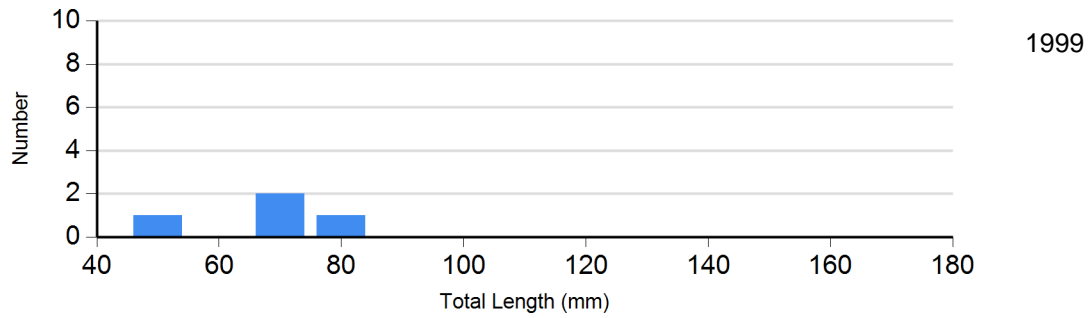


Site: 985
Species: Mountain Sucker

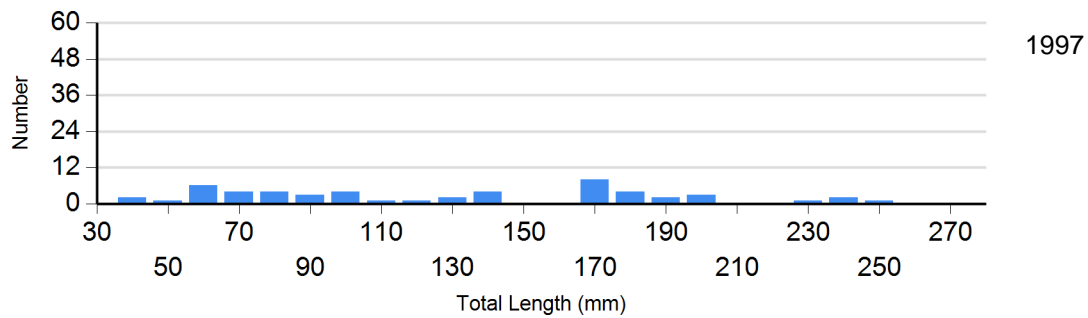
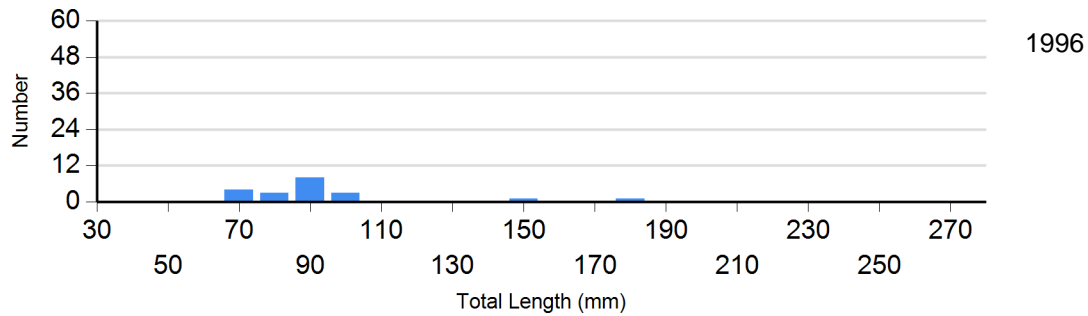
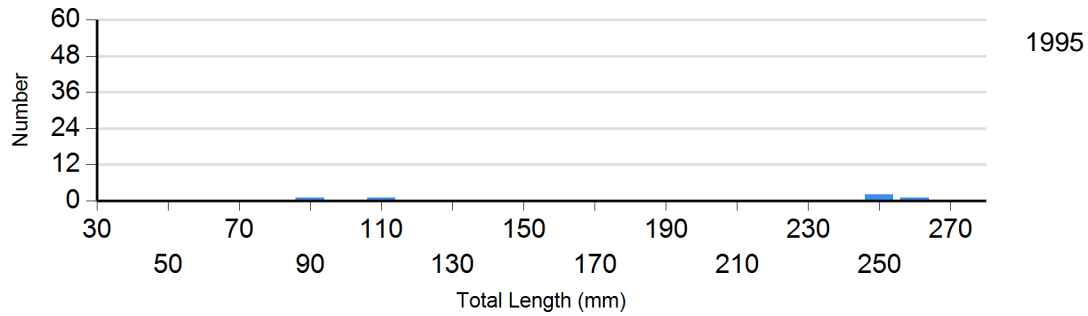


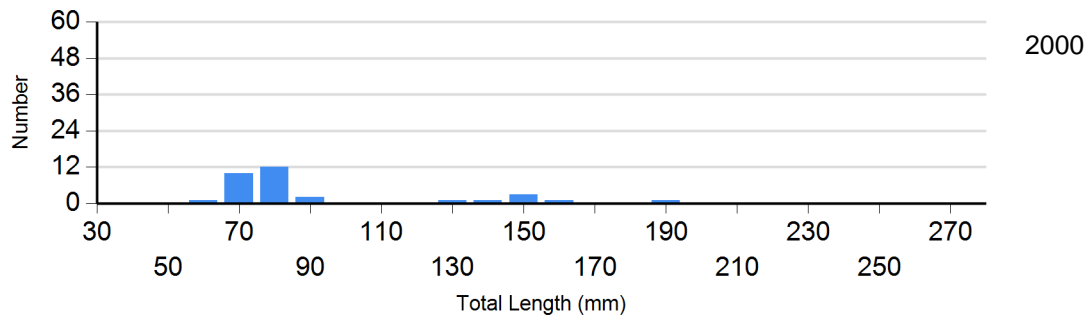
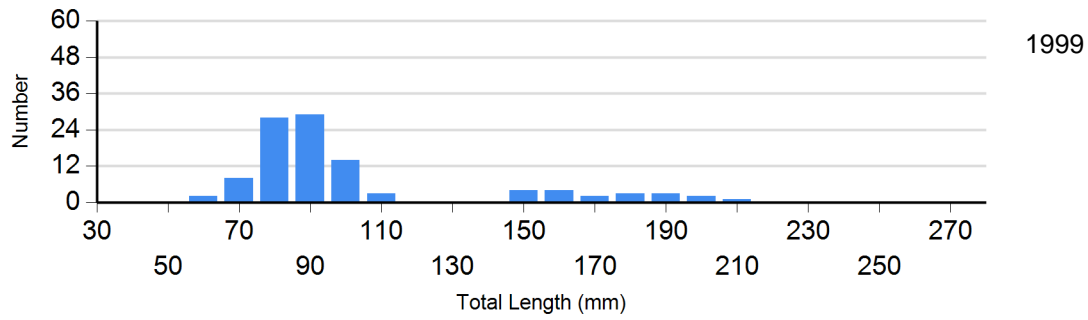
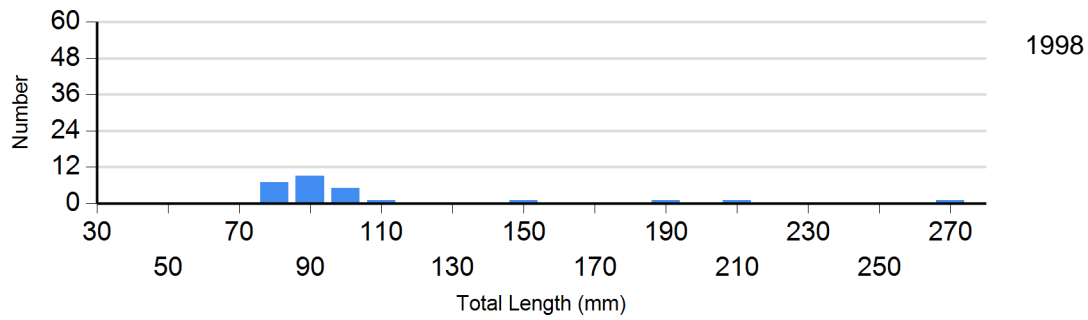
Site: 985
Species: White Sucker



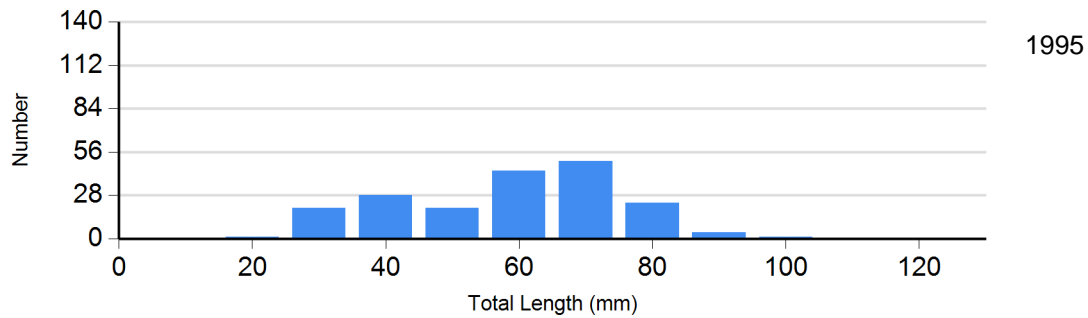


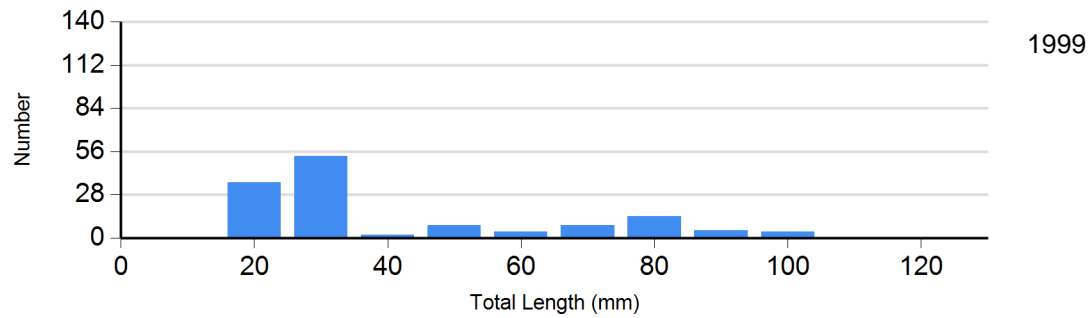
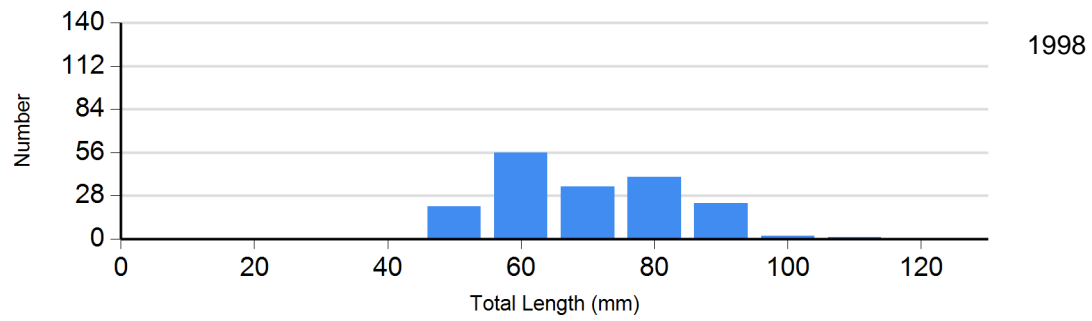
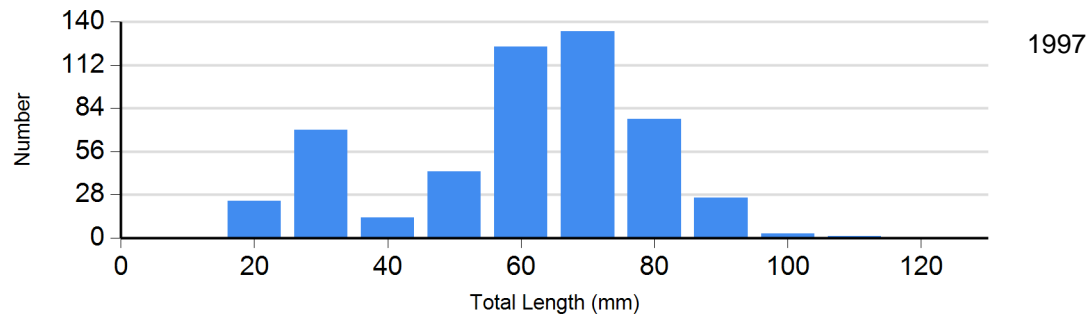
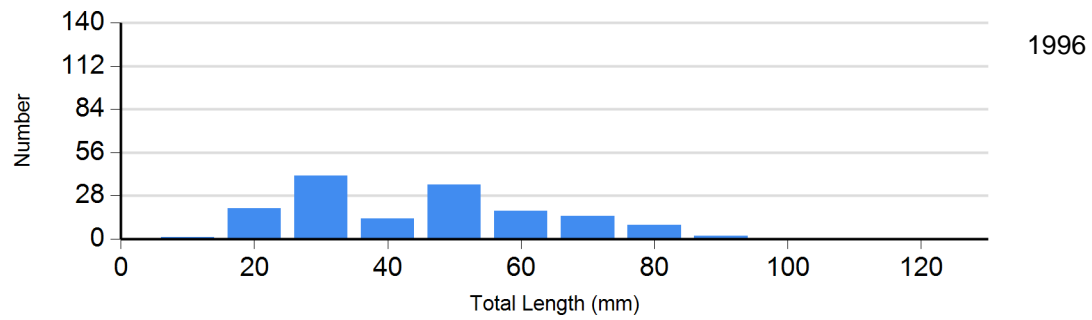
Site: 988
Species: Brook Trout

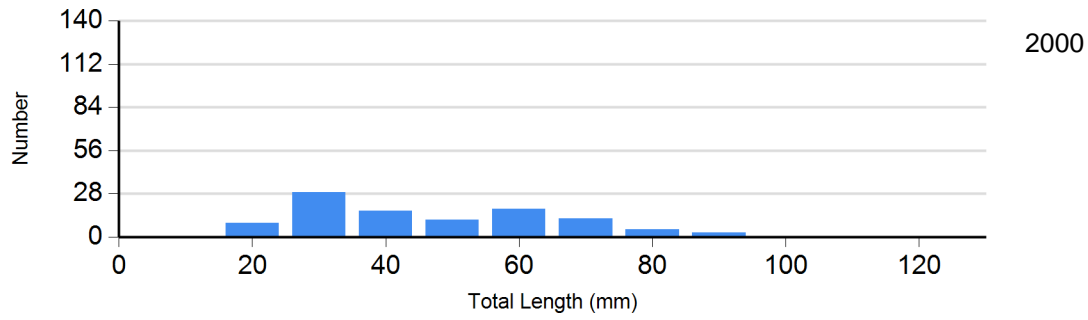




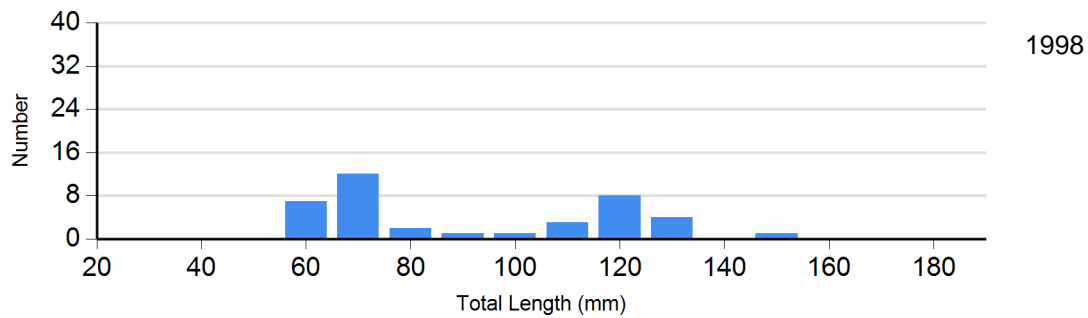
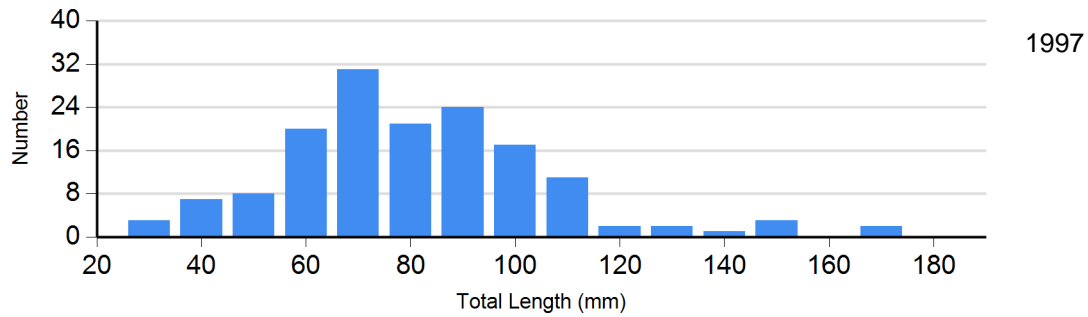
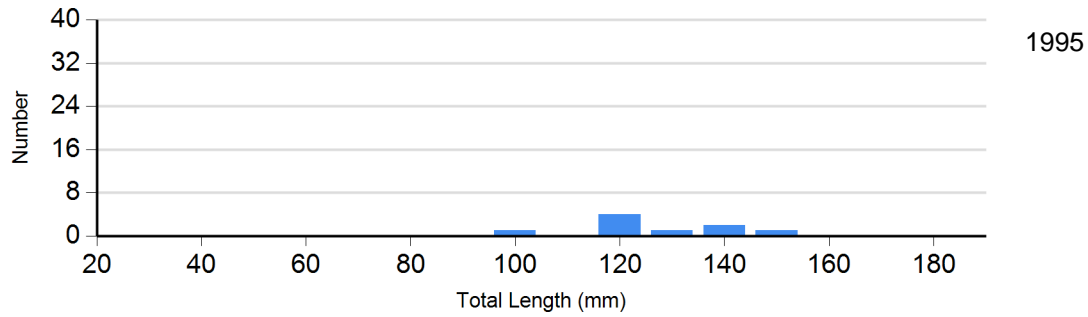
Site: 988
Species: Longnose Dace

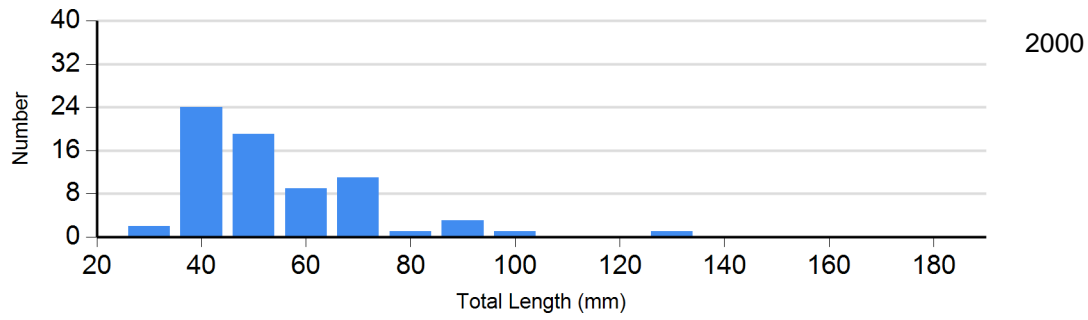




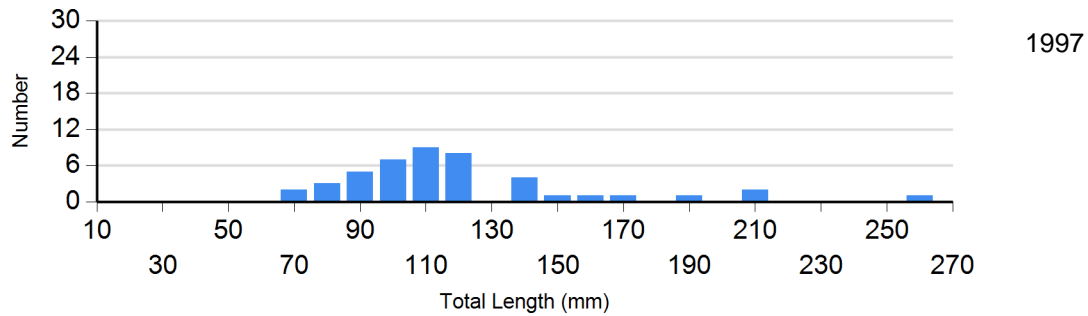
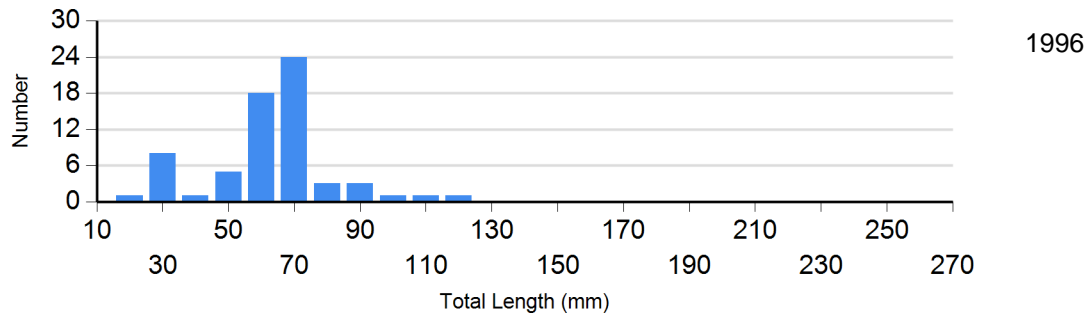
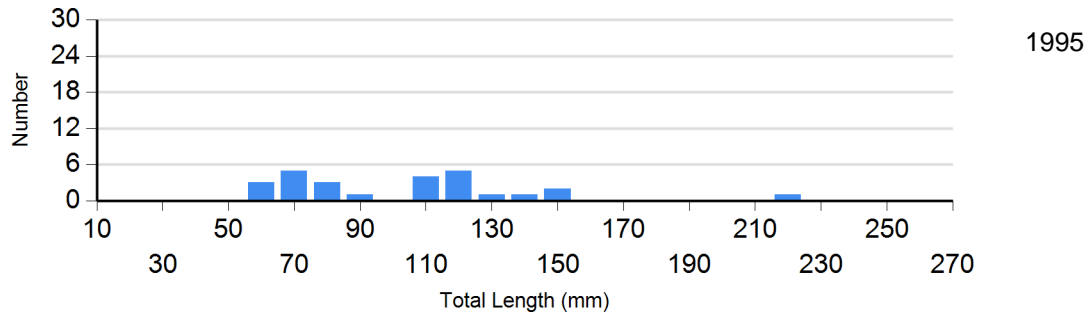


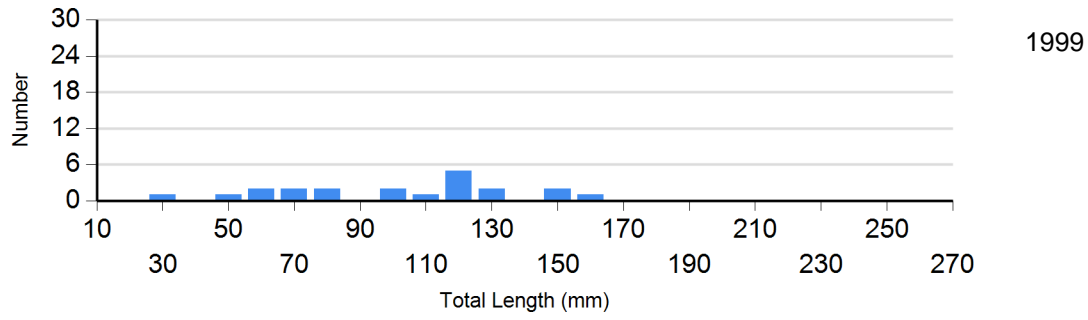
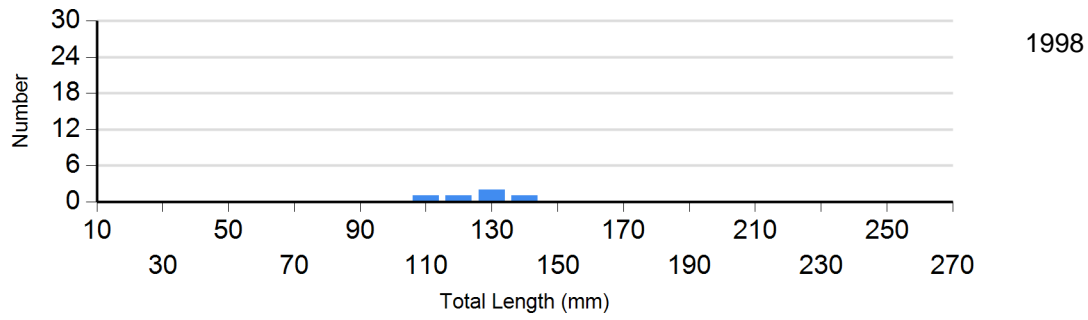
Site: 988
Species: Mountain Sucker



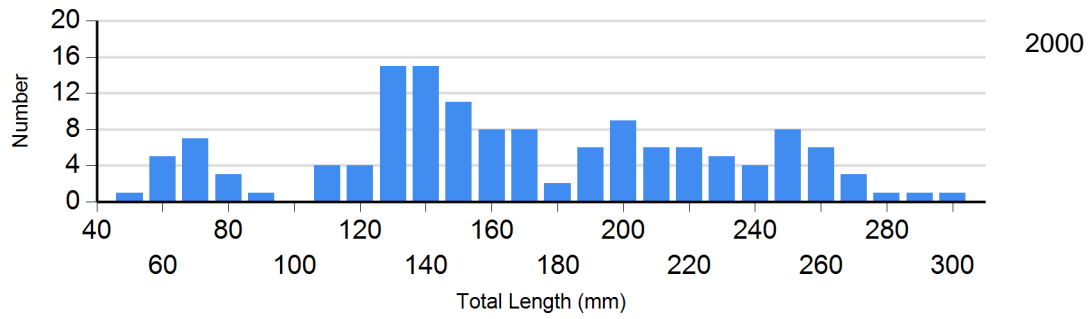


Site: 988
Species: White Sucker

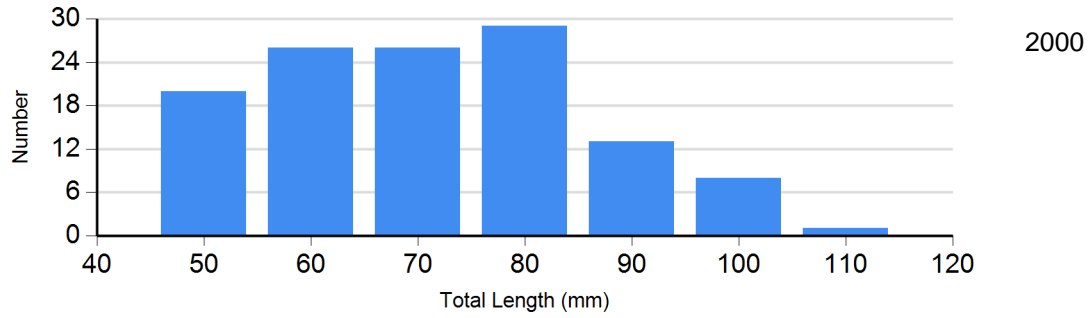




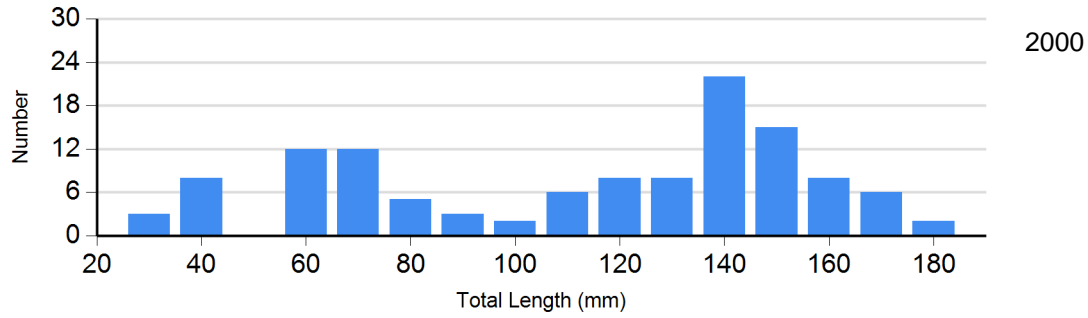
Site: 992
Species: Brook Trout



Site: 992
Species: Longnose Dace



Site: 992
Species: Mountain Sucker



Site: 992
Species: White Sucker

