

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Bear Butte Creek, Meade County
49-0023-00
2003

Table 1. Population and Biomass Estimates for Bear Butte Creek

Site Number: 951	Date Sampled: 09/15/2003	Conductivity (umhos/cm): 285
Site Midpoint (Latitude, Longitude): 44.33467177, -103.62481850	Site Length (m): 100	pH: 8.4
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 3.7	Water Temperature (C): 10.0
Stream Classification: BK3	Number of Pass: 4	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)
Brook Trout	<200mm	175	176	178	175	4804	27	1760	1946	23.68	2832	77.3	5.5
Brook Trout	>=200mm	1	1	1	1	27	3	10	11	2.32	16	208.0	95.0
Brook Trout	All	176	177	179	176	4831	29	1770	1957	26.00	2848	78.1	6.0
Longnose Dace	All	82	83	86	82	2266	8	830	918	7.32	1335	52.2	3.6
Mountain Sucker	All	38	41	47	38	1119	5	410	453	4.91	660	51.6	4.9

Site Number: 955	Date Sampled: 09/15/2003	Conductivity (umhos/cm): 310
Site Midpoint (Latitude, Longitude): 44.33484568, -103.62910289	Site Length (m): 100	pH: 4.2
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 3.6	Water Temperature (C): 12.0
Stream Classification: BK2	Number of Pass: 4	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)
Brook Trout	<200mm	243	247	252	243	6793	49	2470	2751	43.65	3974	81.5	7.2
Brook Trout	>=200mm	3	3	3	3	83	7	30	33	6.53	48	207.3	88.7
Brook Trout	All	246	250	255	246	6875	56	2500	2784	50.28	4023	83.0	8.2

Longnose Dace	All	157	170	182	158	4675	22	1700	1893	19.76	2735	57.0	4.7
Mountain Sucker	All	28	28	30	28	770	9	280	312	8.10	451	66.3	11.8

Site Number: 976

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2

Date Sampled: 09/16/2003

Site Length (m): 100

Mean Width (m): 3.0

Number of Pass: 4

Conductivity (umhos/cm): 290

pH: 8.5

Water Temperature (C): 10.5

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)
Brook Trout	<200mm	149	149	151	149	4982	47	1490	2018	41.73	2397	88.3	9.4
Brook Trout	>=200mm	4	4	5	4	134	12	40	54	10.45	64	208.3	87.5
Brook Trout	All	153	153	155	153	5116	58	1530	2072	52.18	2462	91.4	11.4
Longnose Dace	All	234	250	263	237	8359	35	2500	3385	30.87	4023	59.0	4.1
Mountain Sucker	All	13	22	55	13	736	17	220	298	15.48	354	83.5	23.6

Site Number: 977

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2

Date Sampled: 09/16/2003

Site Length (m): 100

Mean Width (m): 3.6

Number of Pass: 4

Conductivity (umhos/cm): 290

pH: 8.5

Water Temperature (C): 10.5

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)
Brook Trout	<200mm	116	117	120	116	3234	41	1170	1310	37.01	1883	94.9	12.8
Brook Trout	>=200mm	3	3	3	3	83	9	30	34	7.77	48	213.3	105.0
Brook Trout	All	119	120	123	119	3317	51	1200	1343	45.15	1931	97.9	15.2
Longnose Dace	All	264	319	354	284	8817	36	3190	3571	32.28	5133	54.4	4.1

Mountain Sucker	All	18	18	20	18	497	14	180	201	12.33	290	104.3	27.8
White Sucker	All	2	2	2	2	55	3	20	22	3.08	32	170.5	62.5

Site Number: 985

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2

Date Sampled: 09/18/2003

Site Length (m): 100

Mean Width (m): 2.8

Number of Pass: 4

Conductivity (umhos/cm): 245

pH: 8.4

Water Temperature (C): 9.5

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)
Brook Stickleback	All	1	1	2	1	36	0	10	14	0.02	16	40.0	0.5
Brook Trout	<200mm	107	108	111	107	3845	37	1080	1557	32.63	1738	86.4	9.5
Brook Trout	>=200mm	3	3	3	3	107	10	30	43	9.22	48	210.7	96.7
Brook Trout	All	110	111	114	110	3951	47	1110	1600	41.92	1786	89.8	11.9
Longnose Dace	All	180	201	218	184	7155	26	2010	2898	23.27	3234	64.3	3.6
Mountain Sucker	All	4	4	5	4	142	3	40	58	2.96	64	128.3	23.3
White Sucker	All	1	1	1	1	36	1	10	14	0.79	16	136.0	25.0

Site Number: 988

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2

Date Sampled: 09/18/2003

Site Length (m): 100

Mean Width (m): 3.2

Number of Pass: 4

Conductivity (umhos/cm): 205

pH: 8.6

Water Temperature (C): 8.5

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)
Brook Trout	<200mm	46	46	48	46	1454	21	460	589	18.46	740	100.2	14.2
Brook Trout	>=200mm	2	2	2	2	63	5	20	26	4.43	32	206.0	78.5

Brook Trout	All	48	48	50	48	1517	26	480	614	22.89	772	104.6	16.9
Longnose Dace	All	657	773	820	726	24434	66	7730	9896	59.03	12438	52.9	2.7
Mountain Sucker	All	23	30	46	23	948	9	300	384	8.36	483	93.0	9.9

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, 1993-2003

Site 951

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 17, 1998	2	2-3	
	Sep 13, 1999	2	2-2	
	Sep 11, 2000	15	15-15	
	Oct 30, 2001	78	78-79	
	Sep 26, 2002	139	134-145	
	Sep 15, 2003	176	175-178	
Brook Trout >=200mm	Sep 17, 1998	1	1-2	BK3

Brook Trout >=200mm	Sep 26, 2002	5	5-5	BK2
	Sep 15, 2003	1	1-1	BK3
Longnose Dace	Sep 13, 1999	1	1-1	
	Oct 30, 2001	33	27-46	
	Sep 26, 2002	55	37-89	
	Sep 15, 2003	83	82-86	
Mountain Sucker	Sep 11, 2000	9	9-9	
	Oct 30, 2001	2	2-6	
	Sep 26, 2002	22	17-36	
	Sep 15, 2003	41	38-47	
White Sucker	Sep 13, 1999	7	7-9	
	Sep 11, 2000	79	73-88	
	Oct 30, 2001	8	8-8	
	Sep 26, 2002	45	45-45	

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	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	
	Oct 30, 2001	150	150-152	
	Sep 26, 2002	108	108-110	
	Sep 15, 2003	247	243-252	
Brook Trout >=200mm	Sep 10, 1997	14	14-16	BK2
	Sep 16, 1998	2	2-2	BK3
	Sep 11, 2000	5	5-5	BK2
	Oct 30, 2001	6	6-6	BK2
	Sep 26, 2002	1	1-2	BK3
	Sep 15, 2003	3	3-3	BK2

Longnose Dace	Sep 10, 1997	21	21-22
	Sep 11, 2000	6	6-6
	Oct 30, 2001	44	38-55
	Sep 26, 2002	24	24-25
	Sep 15, 2003	170	158-182
Mountain Sucker	Sep 10, 1997	8	8-8
	Sep 16, 1998	5	5-6
	Sep 15, 1999	3	3-3
	Sep 11, 2000	18	14-30
	Oct 30, 2001	22	22-24
	Sep 26, 2002	4	4-4
	Sep 15, 2003	28	28-30
White Sucker	Sep 23, 1996	9	9-10
	Sep 10, 1997	7	7-7
	Sep 15, 1999	4	4-4
	Oct 30, 2001	41	40-44

White Sucker

Sep 26, 2002

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11-12

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	
	Sep 09, 1997	1	1-1	
	Sep 13, 1999	6	6-6	
	Sep 12, 2000	42	42-43	
	Sep 12, 2002	103	98-110	
	Sep 16, 2003	149	149-151	
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
	Sep 12, 2002	7	7-7	BK2

Brook Trout >=200mm	Sep 16, 2003	4	4-5	BK2
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	
	Sep 12, 2002	239	227-251	
	Sep 16, 2003	250	237-263	
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	
	Sep 12, 2002	16	16-18	
	Sep 16, 2003	22	13-55	
White Sucker	Apr 16, 1993	2	2-5	

White Sucker	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
	Sep 12, 2002	8	8-9

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	
	Sep 09, 1997	1	1-2	
	Sep 14, 1999	26	26-28	
	Sep 12, 2000	32	30-37	
	Sep 12, 2002	114	112-118	
	Sep 16, 2003	117	116-120	

Brook Trout >=200mm	Sep 09, 1997	5	5-5	BK2
	Sep 12, 2000	8	8-8	BK2
	Sep 12, 2002	10	10-10	BK2
	Sep 16, 2003	3	3-3	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	
	Sep 12, 2002	267	222-312	
	Sep 16, 2003	319	284-354	
Mountain Sucker	Apr 16, 1993	16	13-26	
	Sep 09, 1997	28	21-45	
	Sep 12, 2000	38	36-43	
	Sep 12, 2002	22	21-26	
	Sep 16, 2003	18	18-20	

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
	Sep 12, 2002	11	11-12
	Sep 16, 2003	2	2-2

Site 985

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Stickleback	Sep 14, 1999	1	1-1	
	Sep 18, 2003	1	1-2	
Brook Trout <200mm	Nov 04, 1997	5	5-5	
	Sep 14, 1999	64	64-66	
	Sep 13, 2000	100	100-101	
	Oct 23, 2001	155	155-157	

Brook Trout <200mm	Sep 11, 2002	169	169-170	
	Sep 18, 2003	108	107-111	
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
	Oct 23, 2001	7	7-7	BK2
	Sep 11, 2002	8	8-8	BK2
	Sep 18, 2003	3	3-3	BK2
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	
	Oct 23, 2001	239	89-540	
	Sep 11, 2002	172	162-182	
	Sep 18, 2003	201	184-218	

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
	Oct 23, 2001	78	70-89
	Sep 11, 2002	17	17-17
	Sep 18, 2003	4	4-5
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
	Sep 18, 2003	1	1-1

Site 988

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	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	
	Oct 30, 2001	80	79-83	
	Sep 11, 2002	65	65-66	
	Sep 18, 2003	46	46-48	
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
	Oct 30, 2001	4	4-4	BK2
	Sep 11, 2002	2	2-2	BK3
	Sep 18, 2003	2	2-2	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	

Longnose Dace	Sep 16, 1999	352	353-377
	Sep 13, 2000	1289	1273-1305
	Oct 30, 2001	193	194-217
	Sep 11, 2002	1097	1023-1171
	Sep 18, 2003	773	726-820
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
	Oct 30, 2001	27	22-39
	Sep 11, 2002	35	34-38
	Sep 18, 2003	30	23-46
White Sucker	May 10, 1993	48	28-97

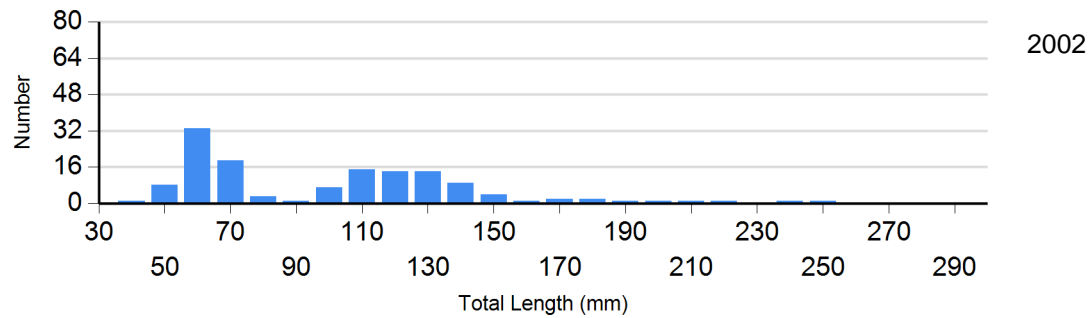
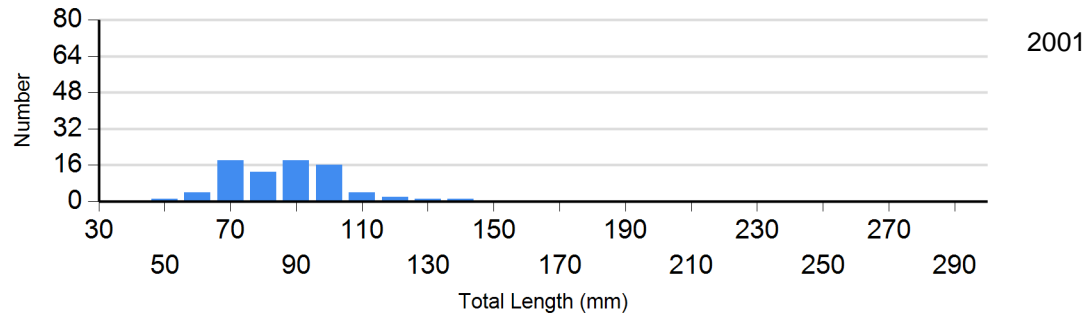
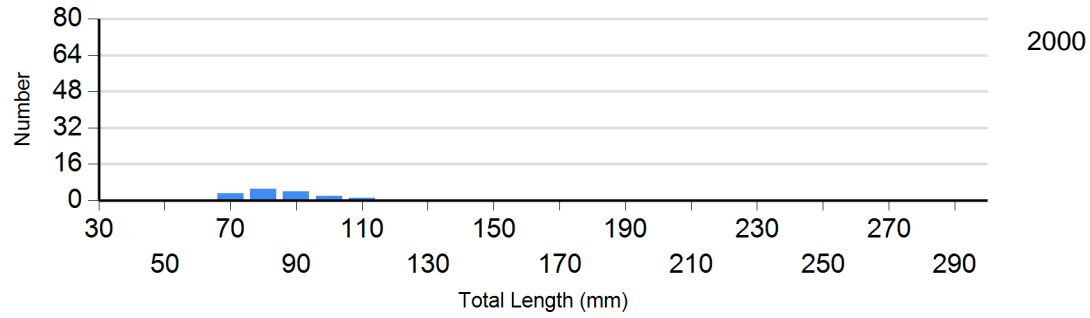
White Sucker	Sep 20, 1994	26	26-27
	Jun 06, 1995	28	15-76
	Sep 18, 1995	11	11-13
	Sep 21, 1996	70	66-77
	Jul 14, 1997	13	12-18
	Sep 09, 1997	13	13-13
	Nov 04, 1997	81	72-93
	Sep 14, 1998	31	23-50
	Sep 16, 1999	22	21-26
	Sep 13, 2000	1	1-1
	Oct 30, 2001	11	10-16
	Sep 11, 2002	1	1-2

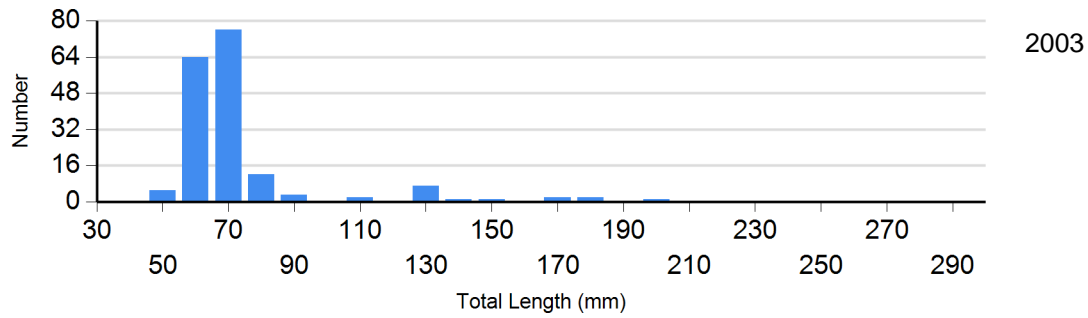
Length Frequency Distribution

Length frequency histogram of species sampled by year.

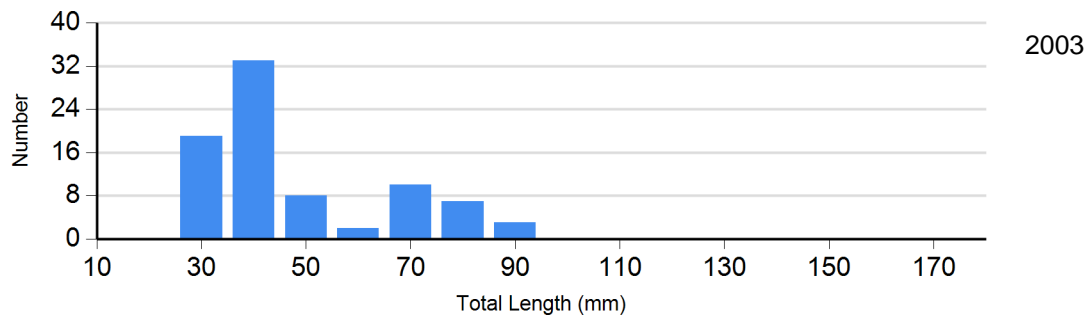
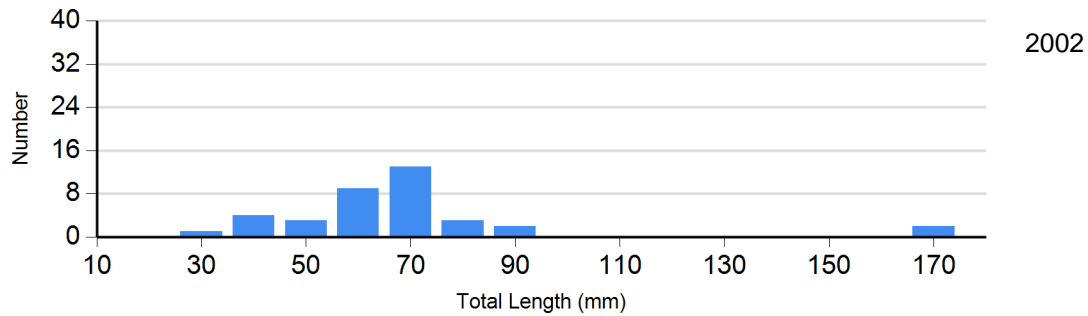
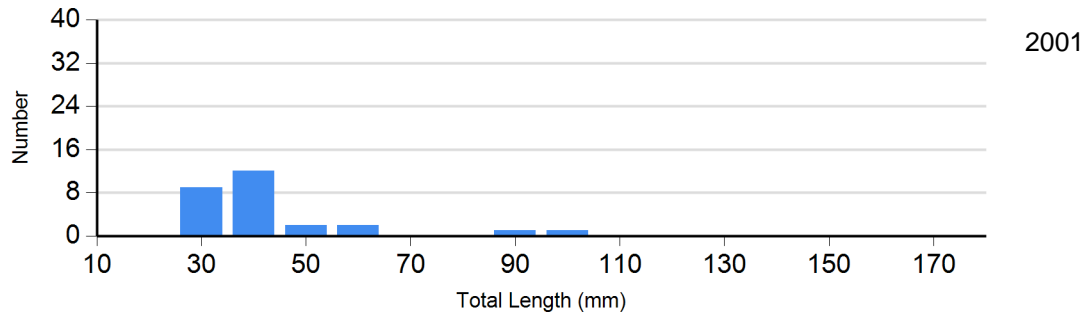
Site: 951

Species: Brook Trout

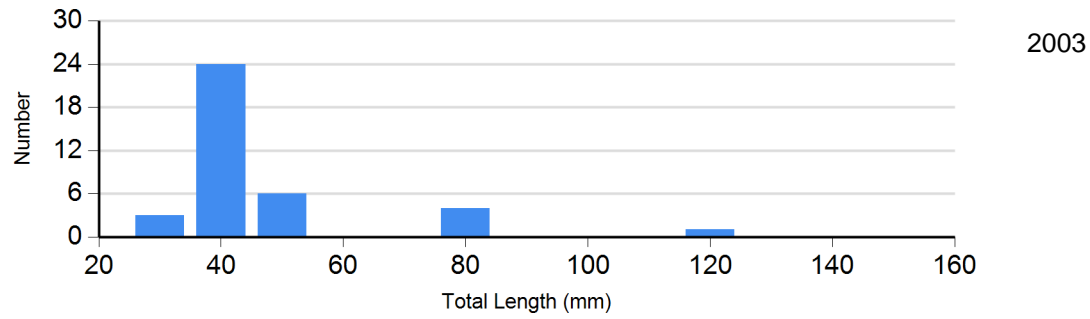
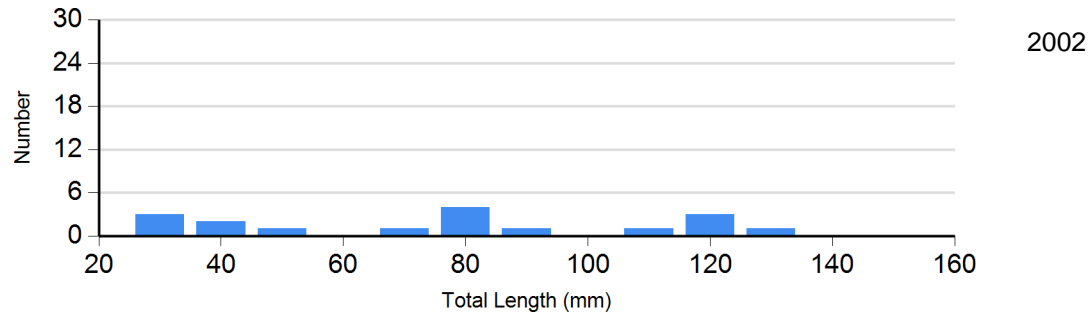
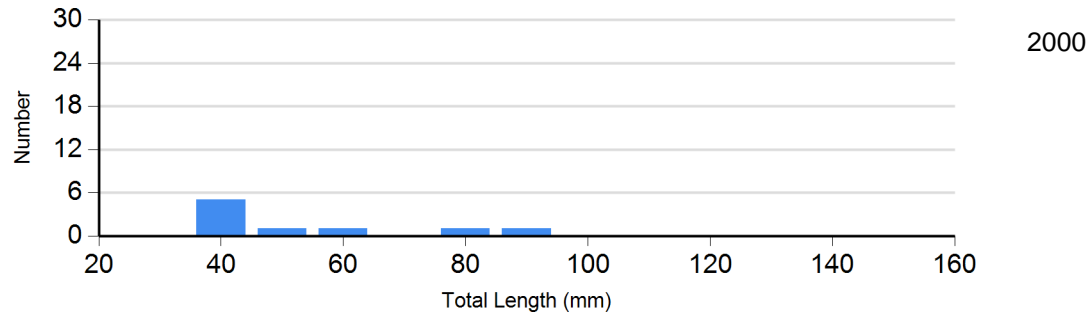




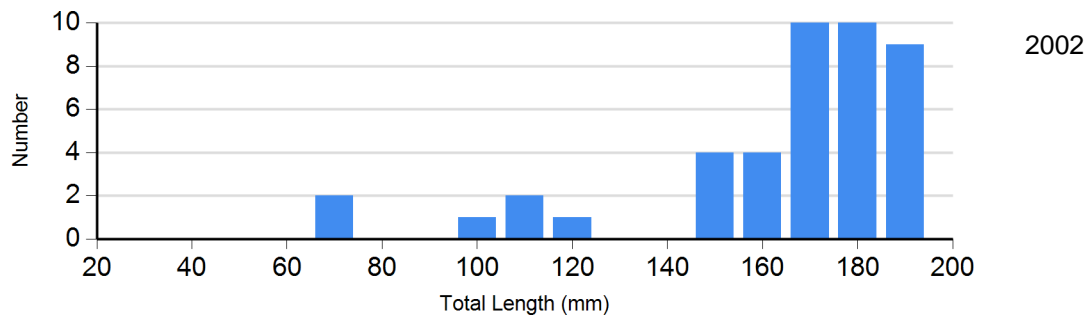
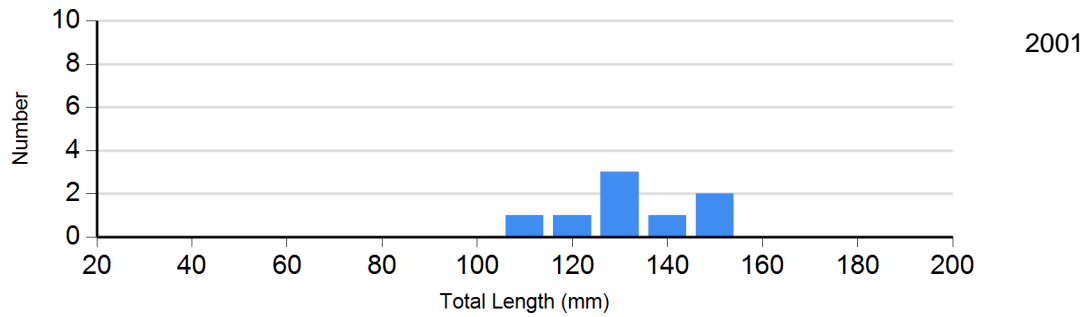
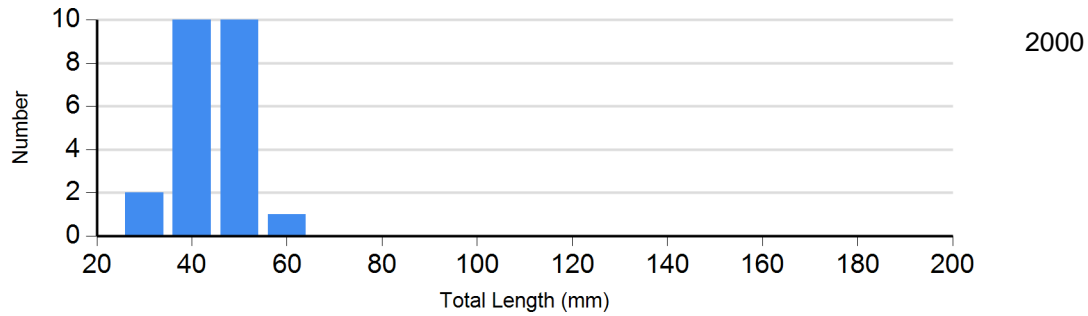
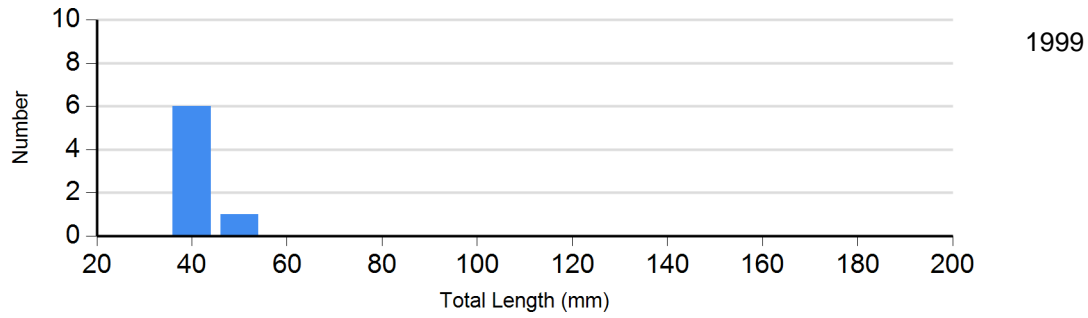
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Species: Longnose Dace



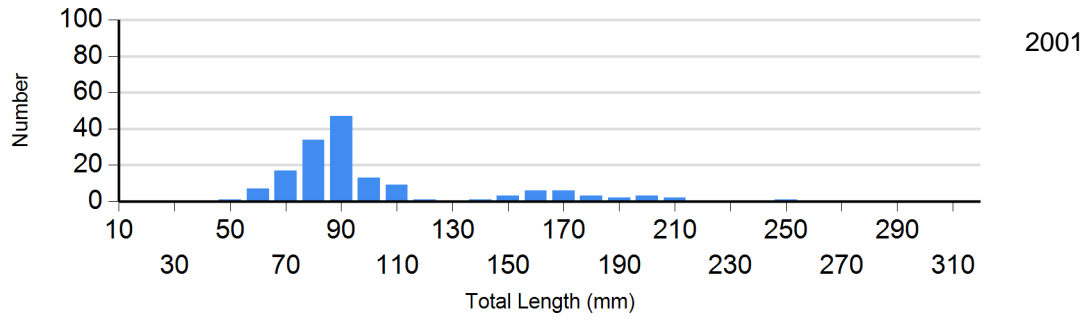
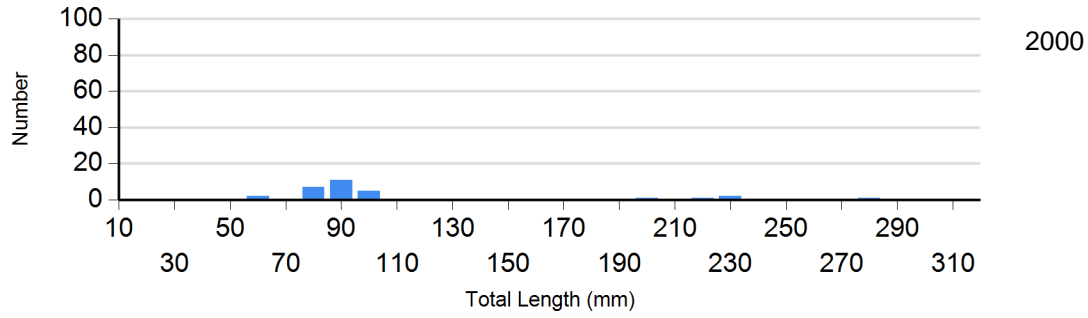
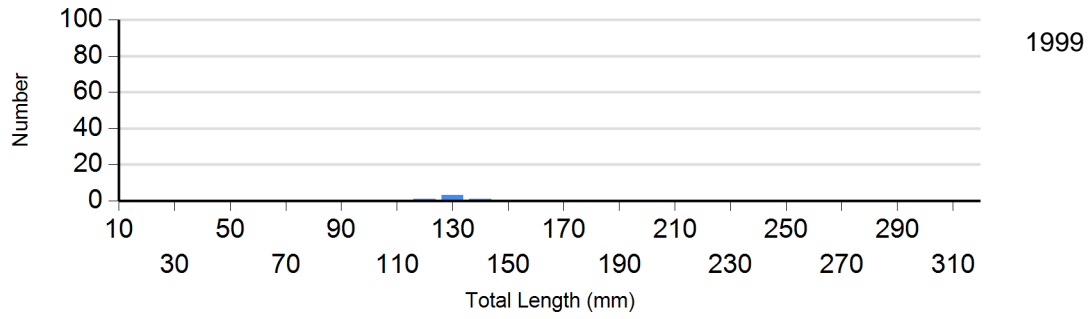
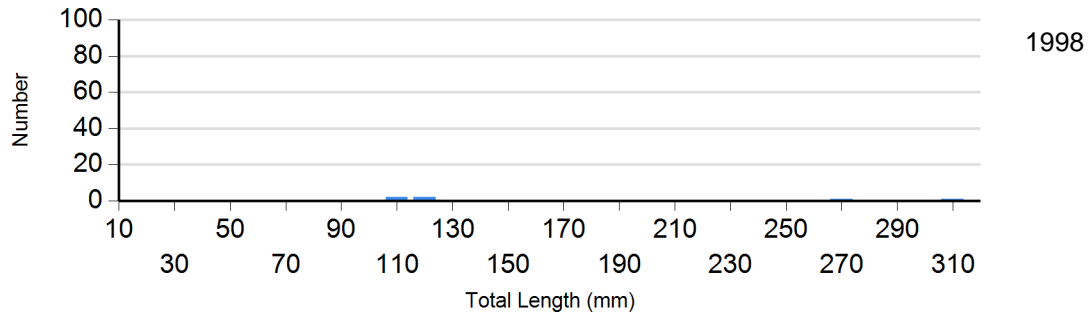
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Species: Mountain Sucker

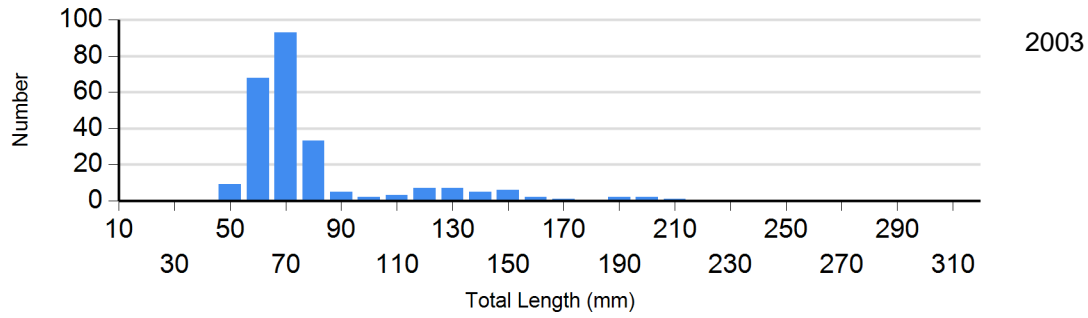
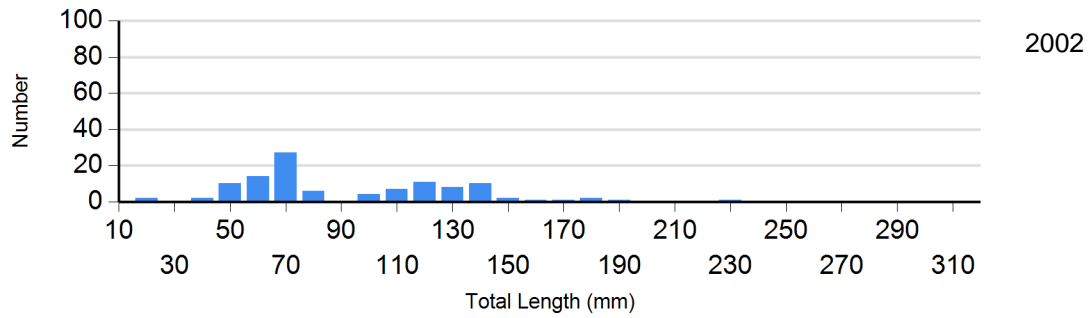


Site: 951
Species: White Sucker

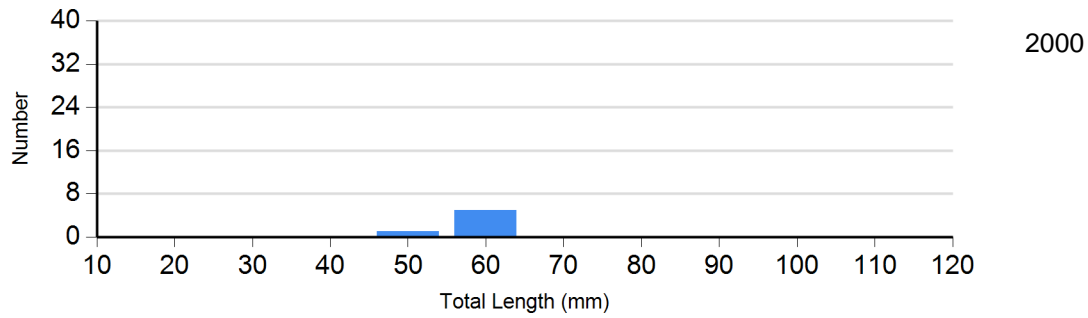
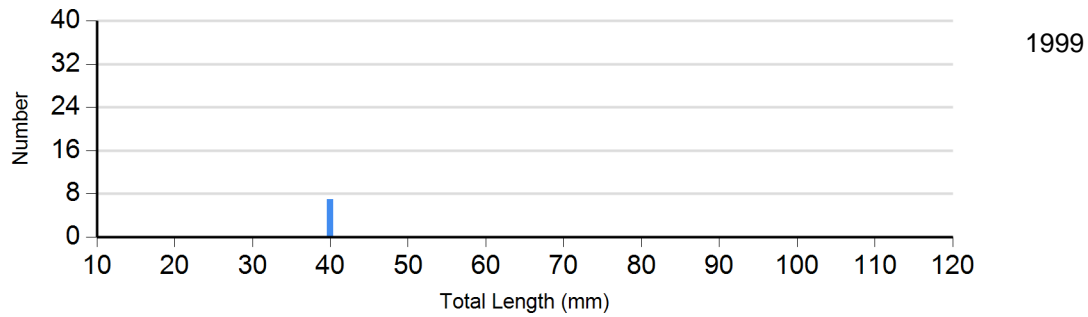


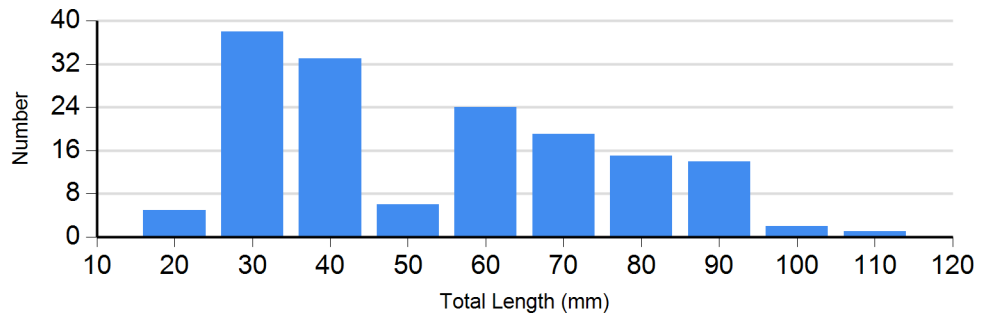
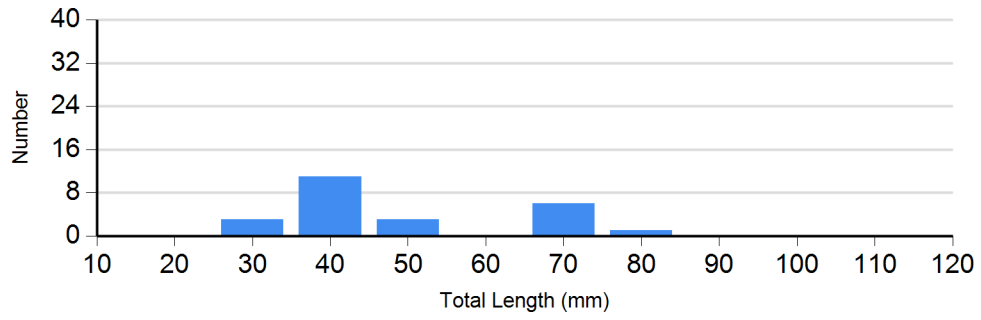
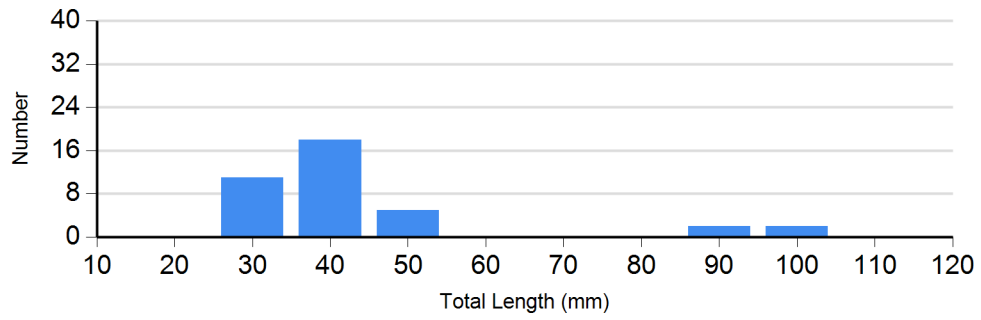
Site: 955
Species: Brook Trout



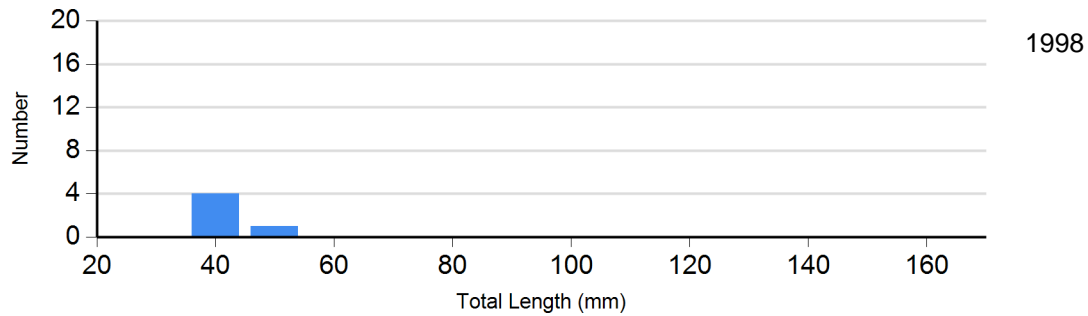


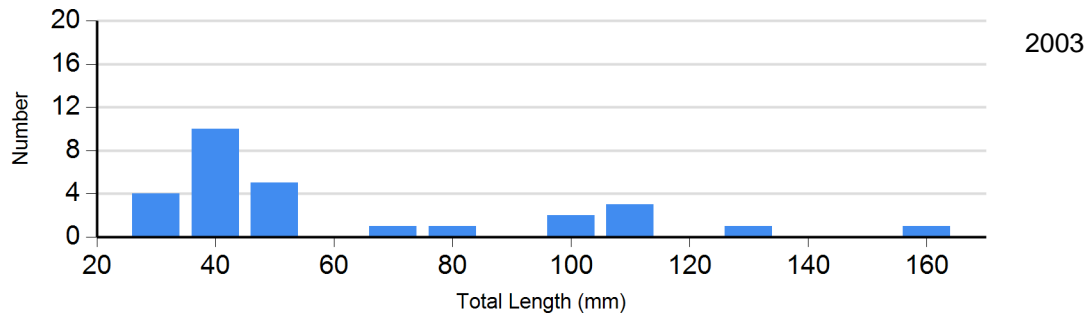
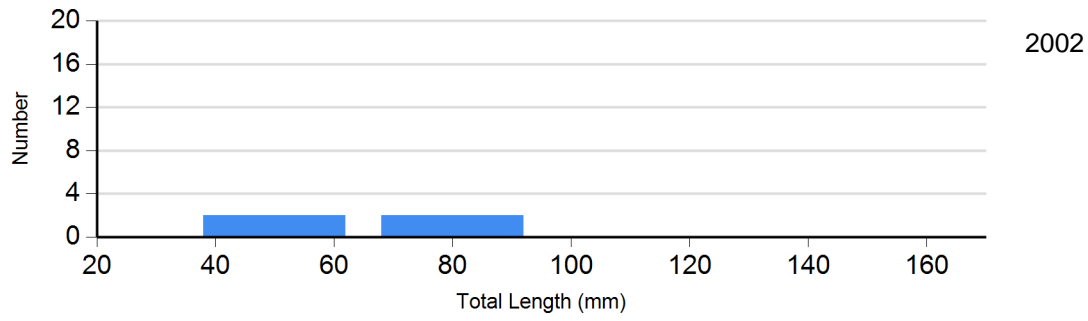
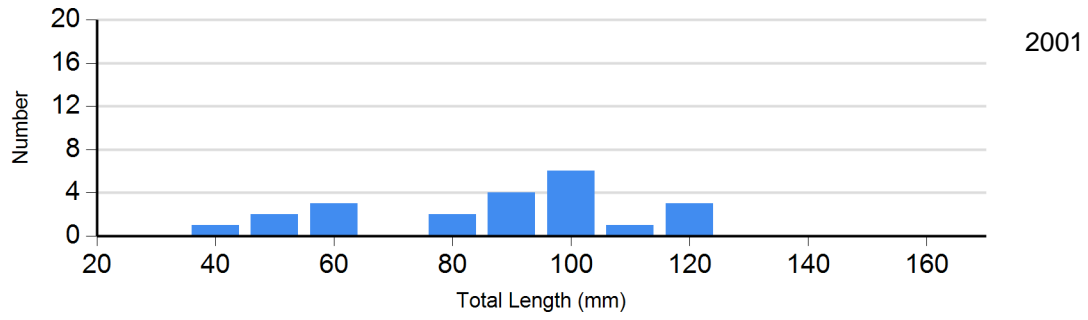
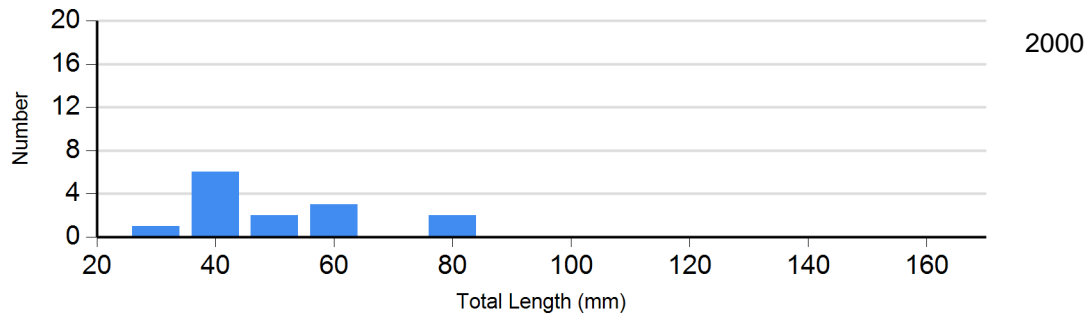
Site: 955
Species: Longnose Dace



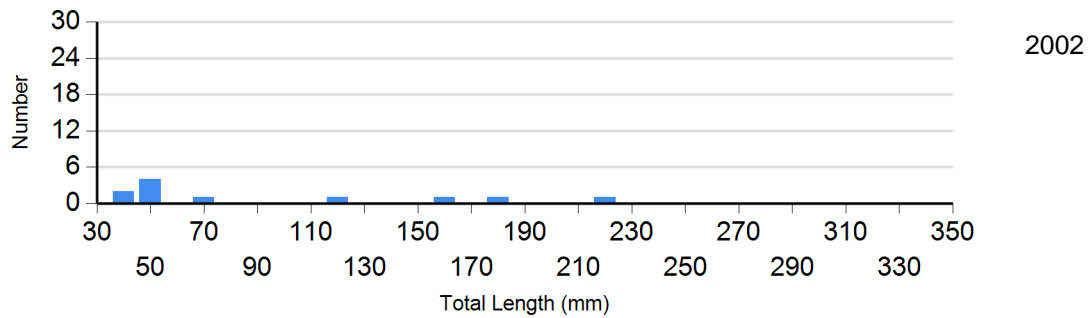
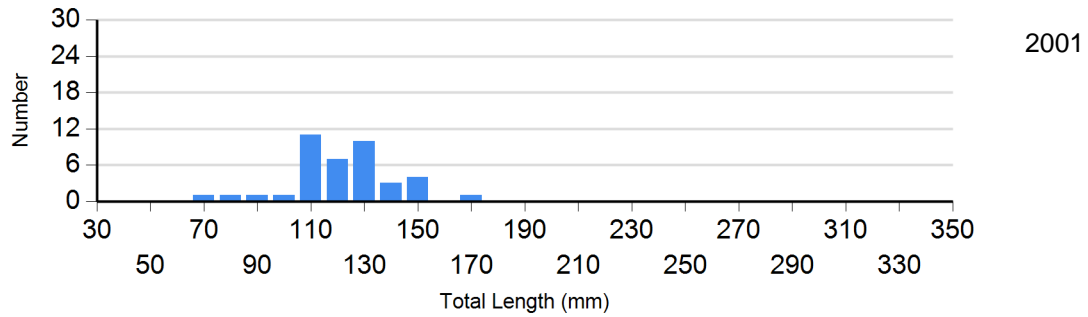
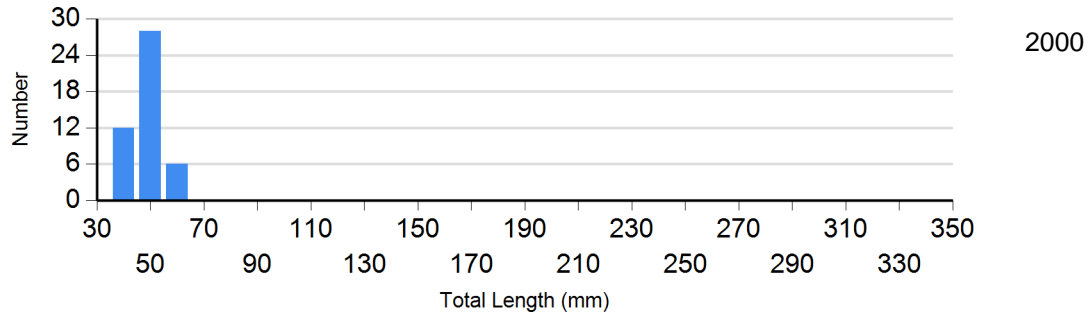
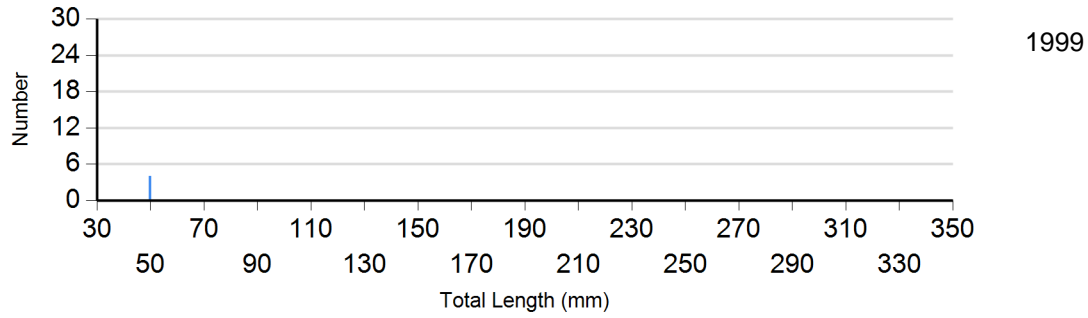


Site: 955
Species: Mountain Sucker

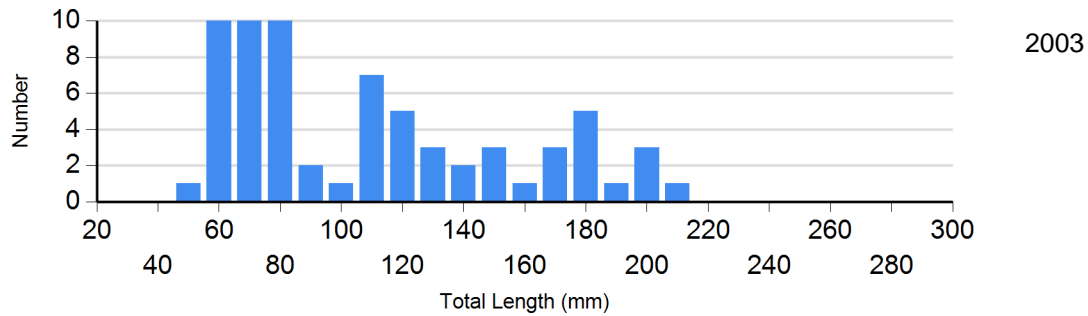
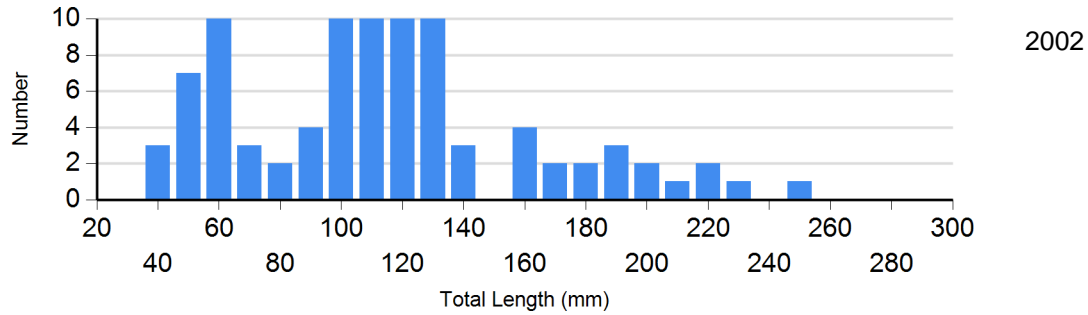
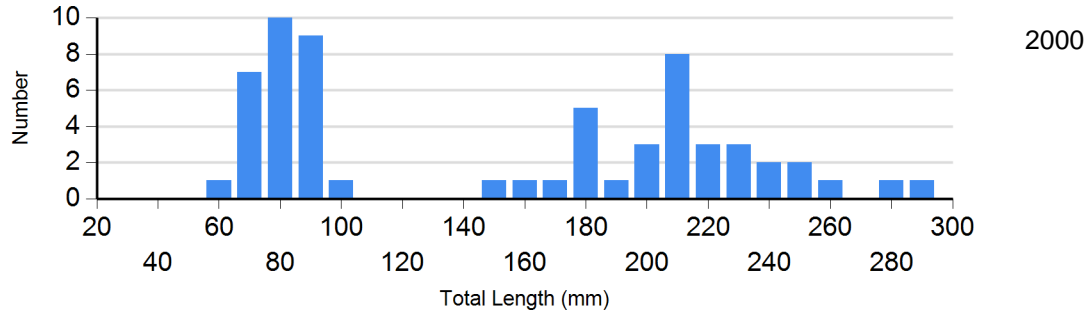
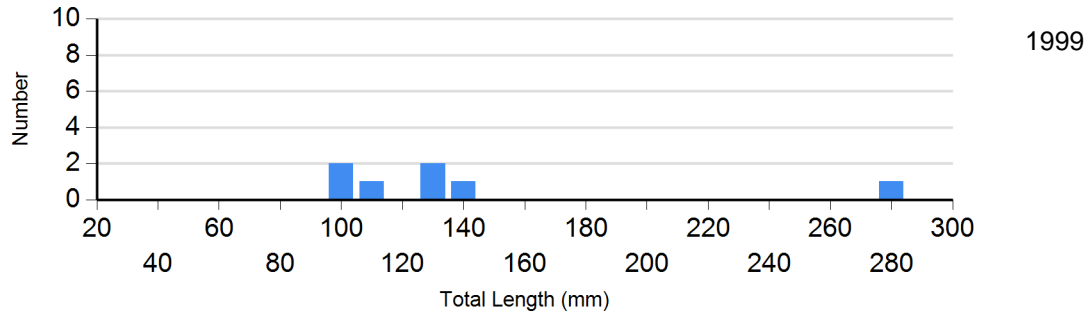




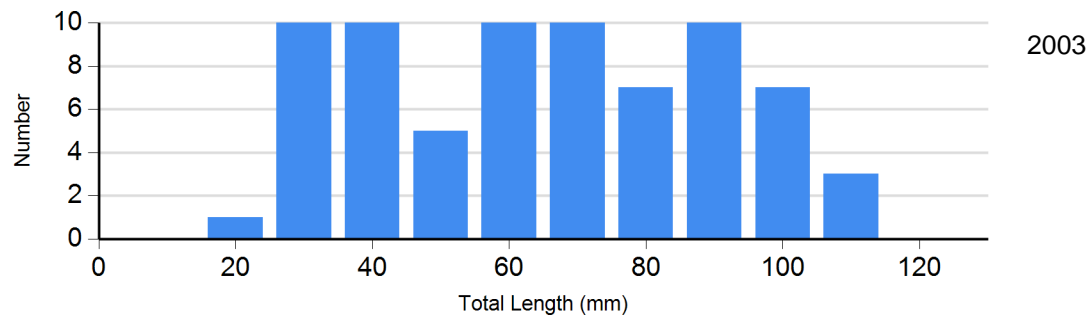
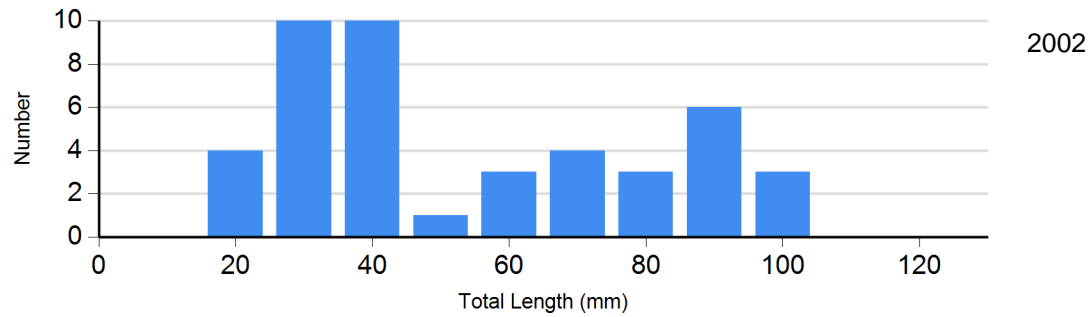
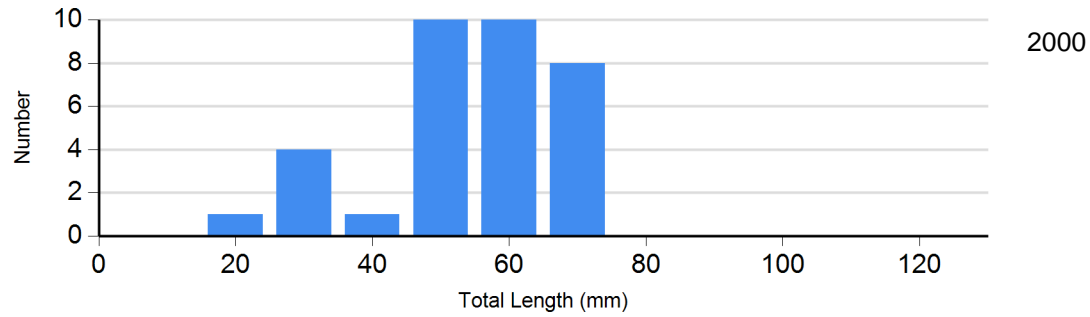
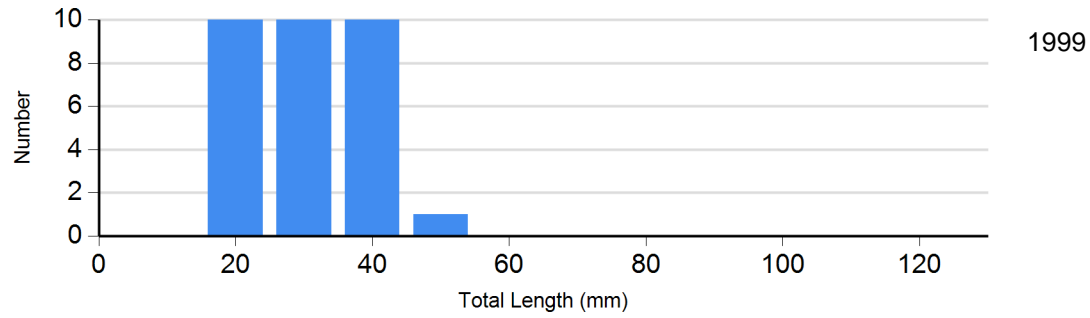
Site: 955
Species: White Sucker



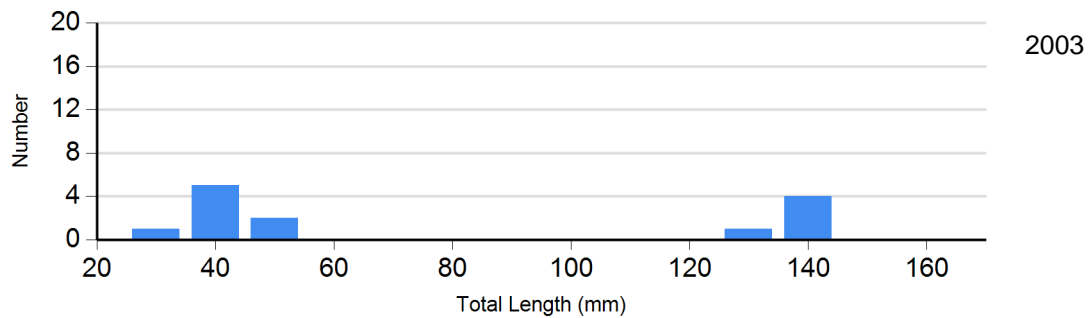
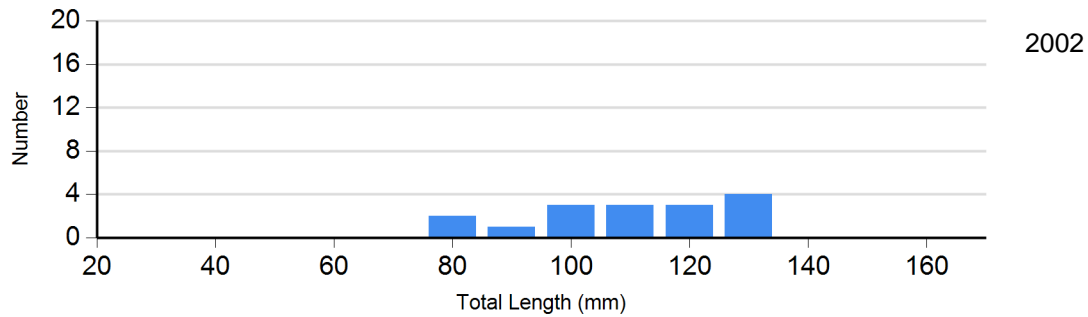
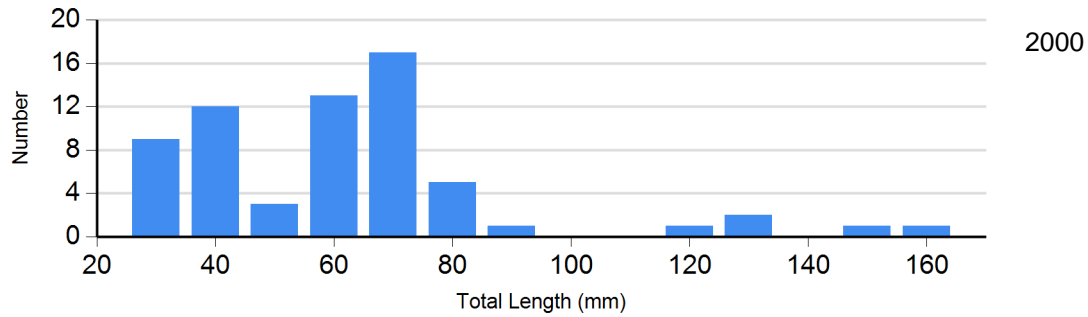
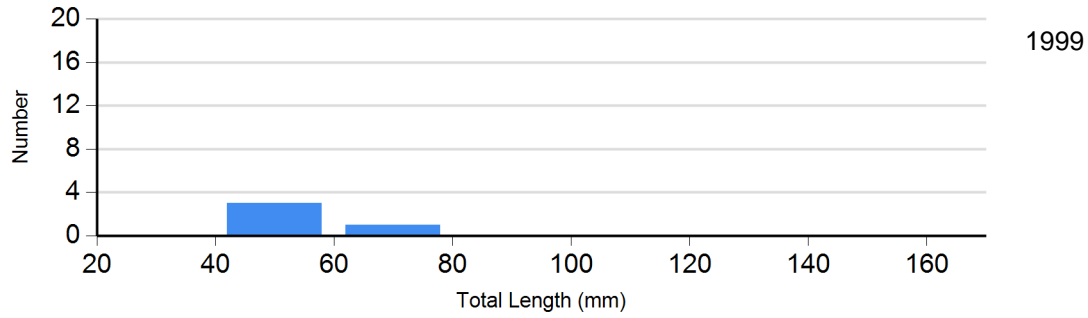
Site: 976
Species: Brook Trout



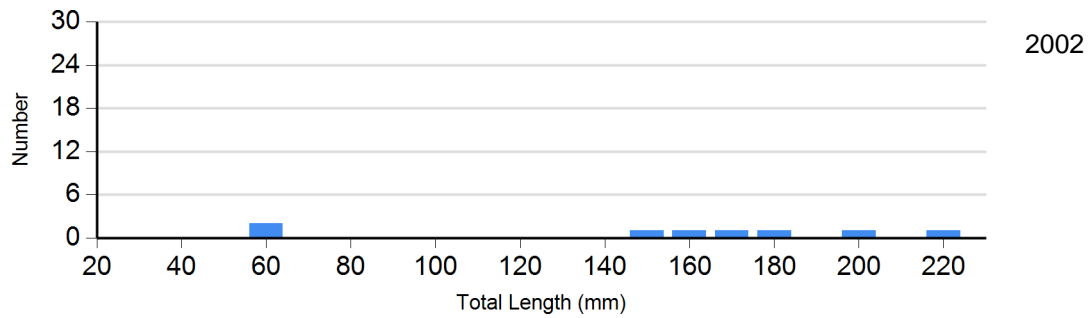
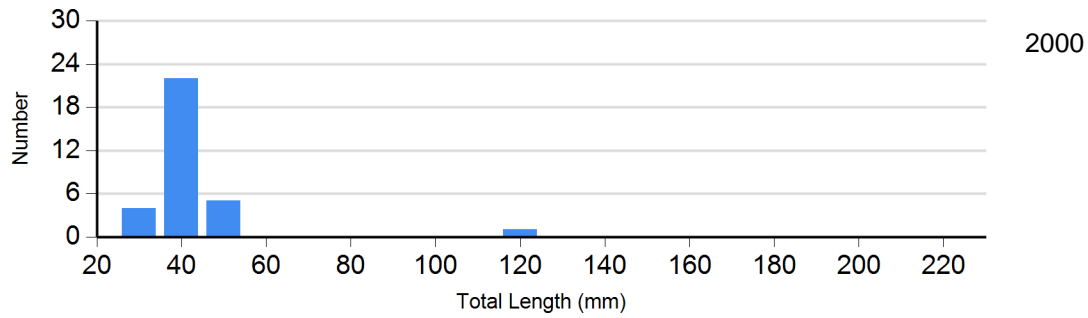
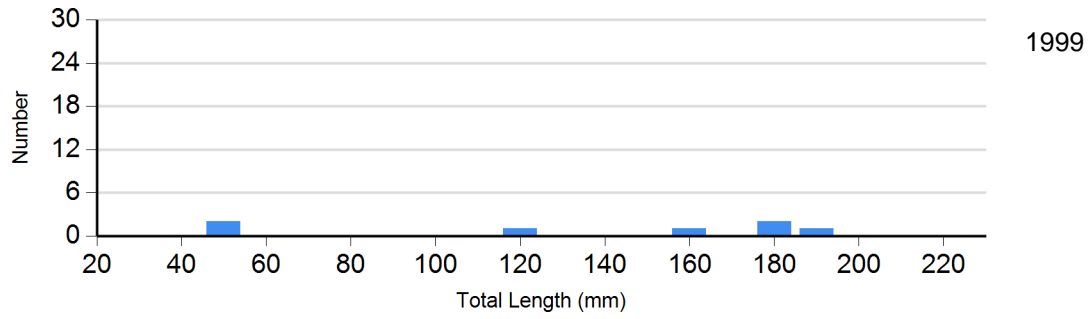
Site: 976
Species: Longnose Dace



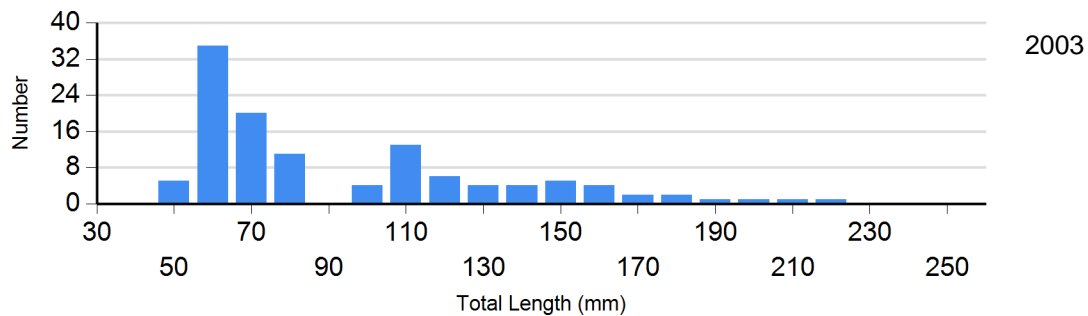
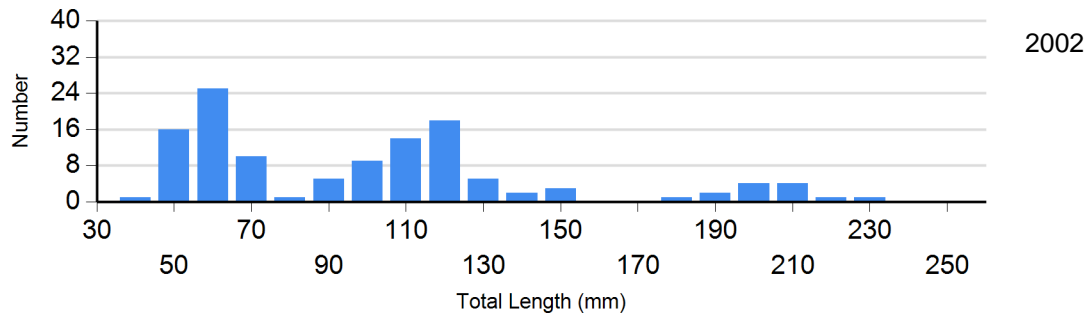
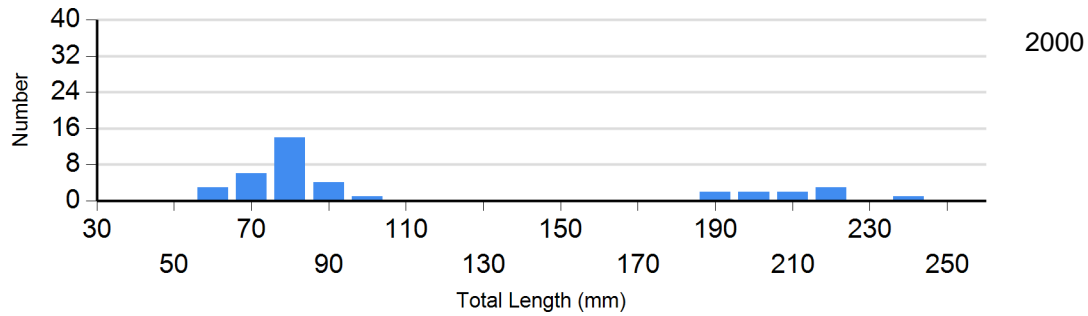
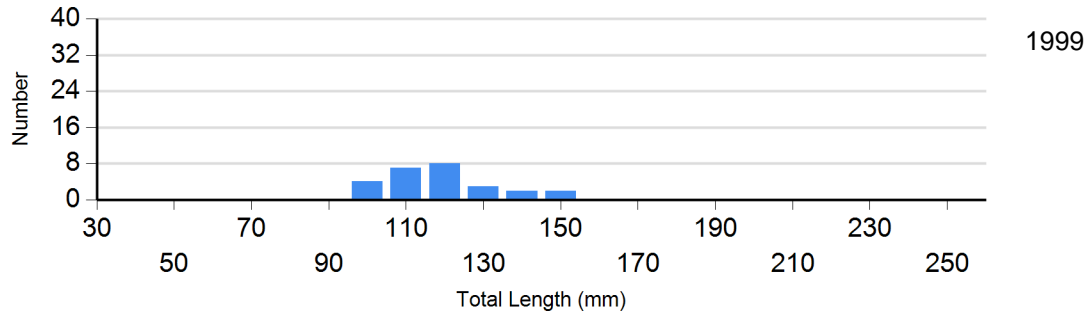
Site: 976
Species: Mountain Sucker



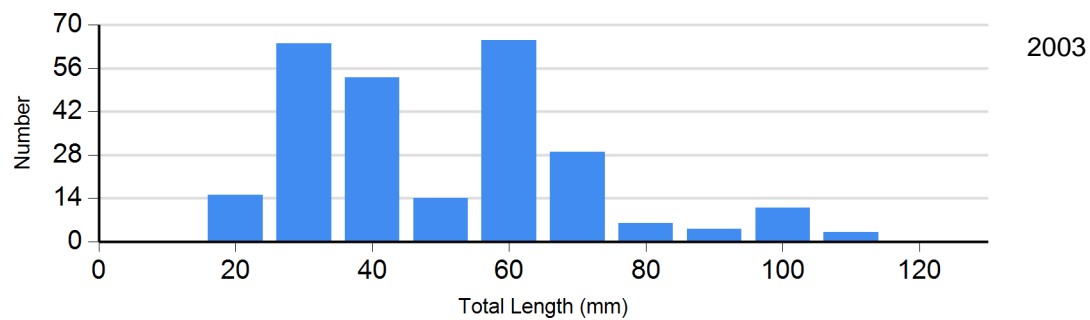
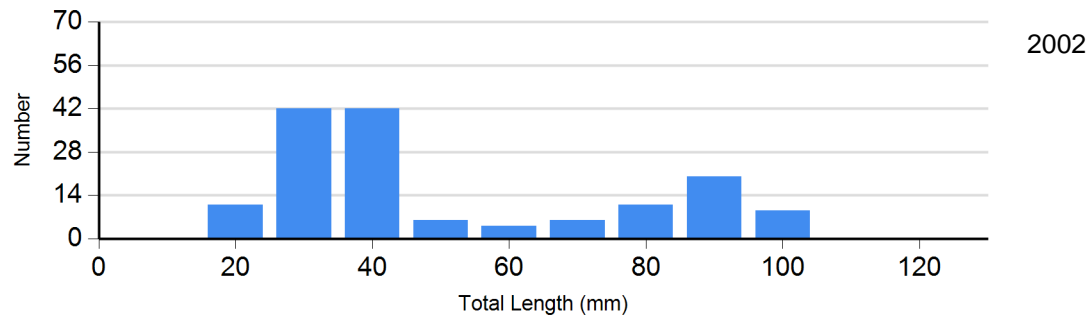
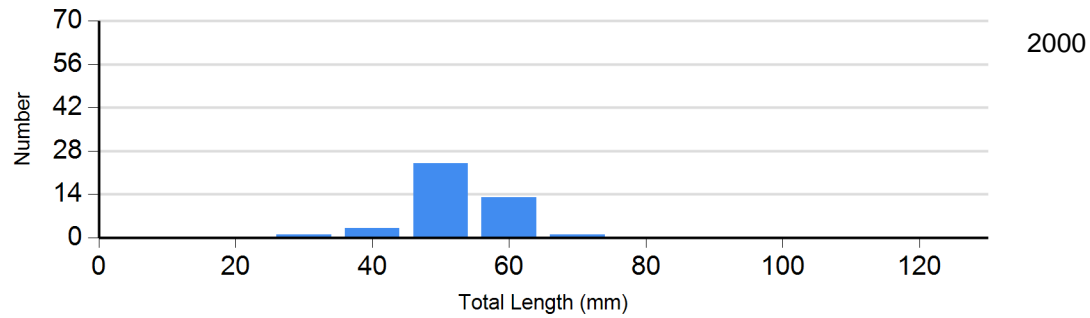
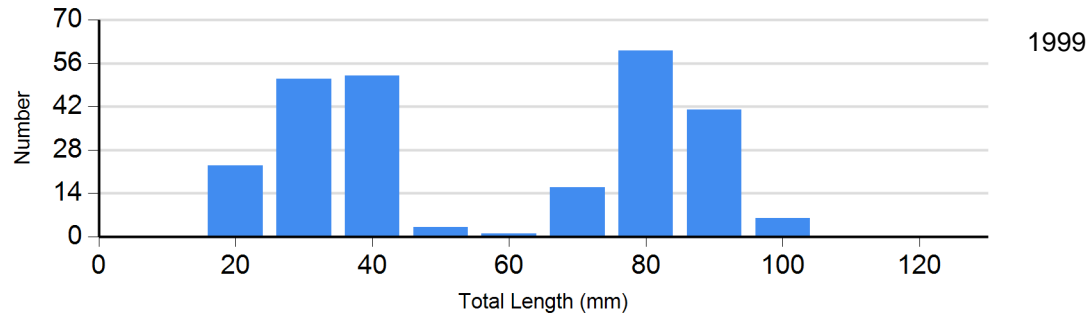
Site: 976
Species: White Sucker



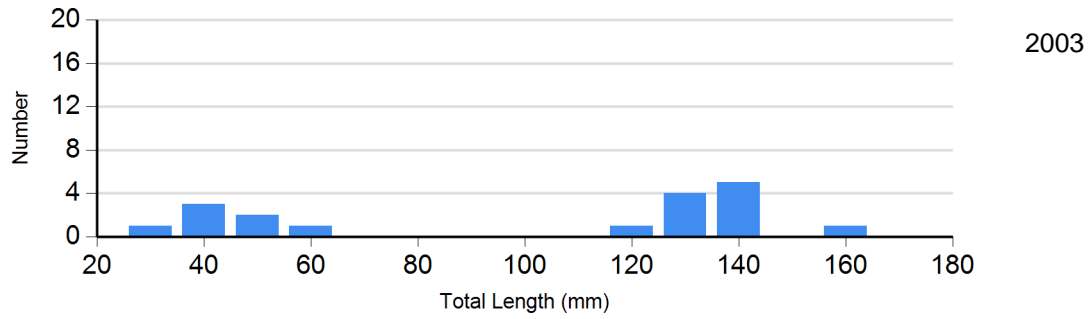
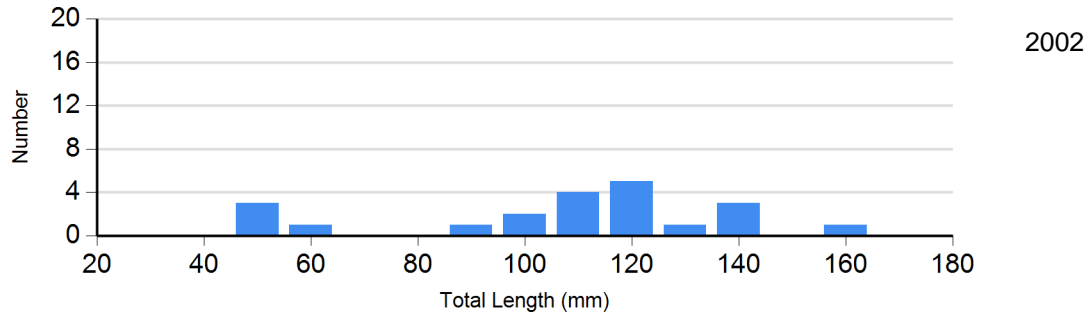
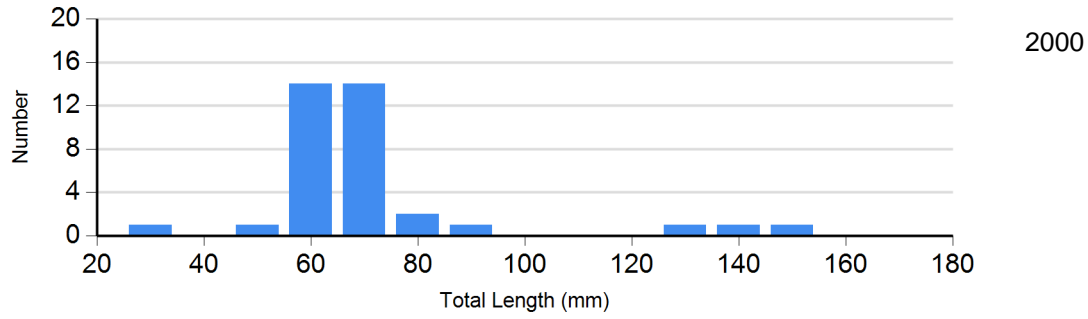
Site: 977
Species: Brook Trout



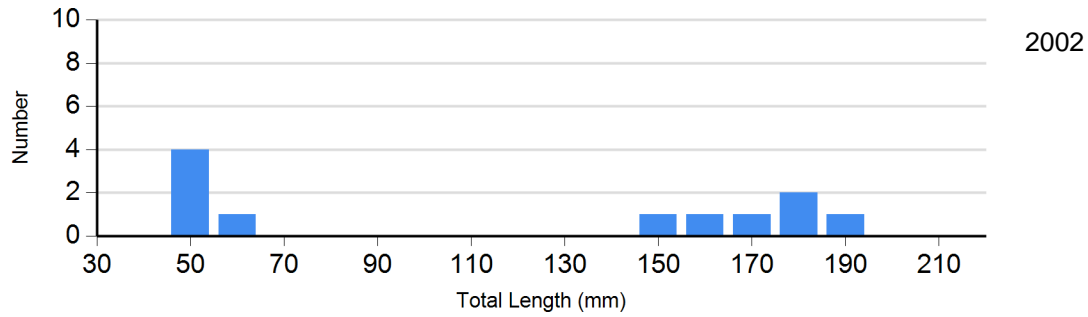
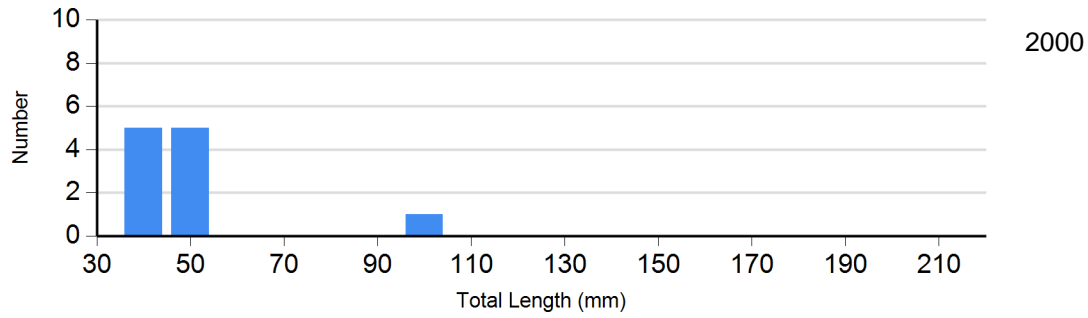
Site: 977
Species: Longnose Dace



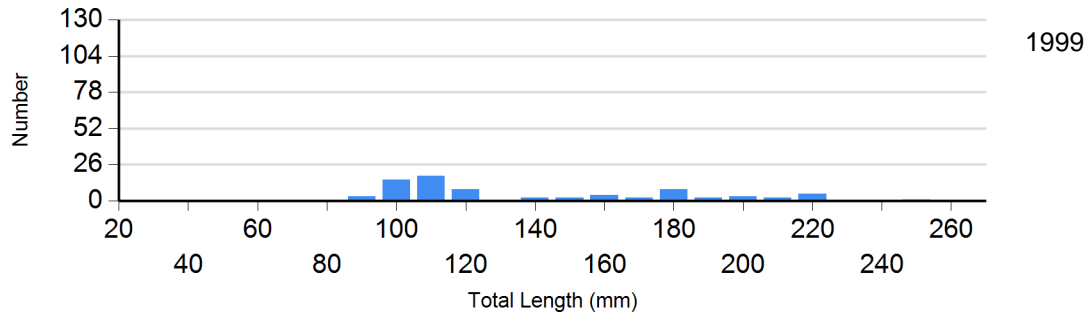
Site: 977
Species: Mountain Sucker

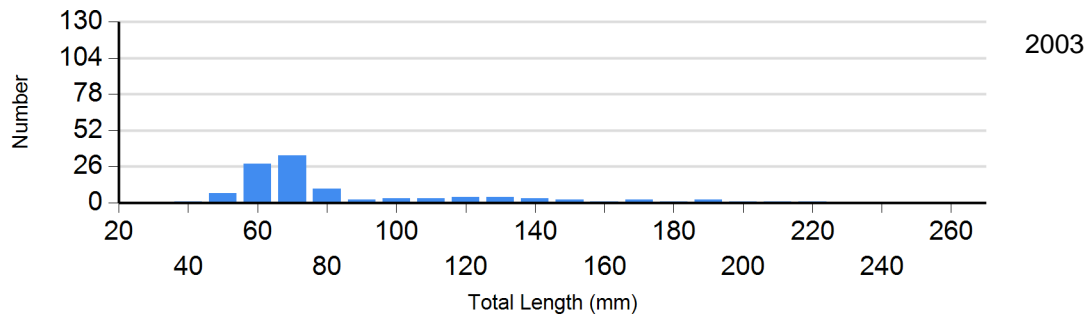
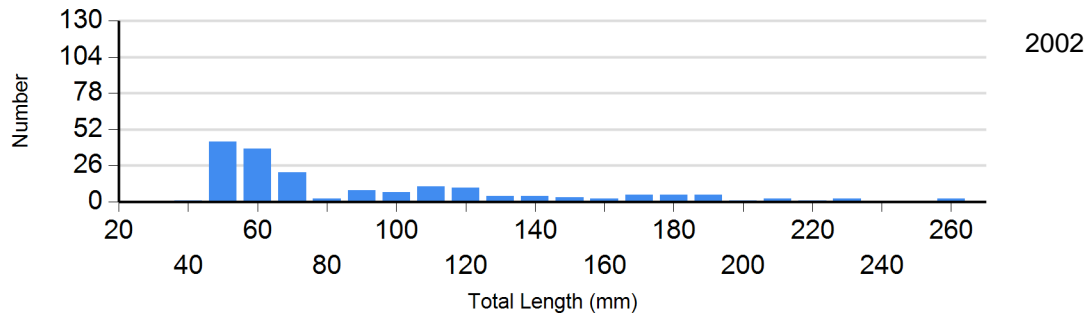
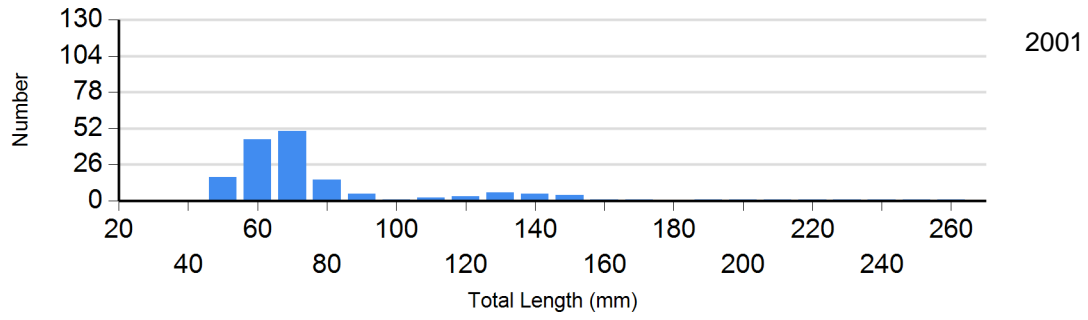
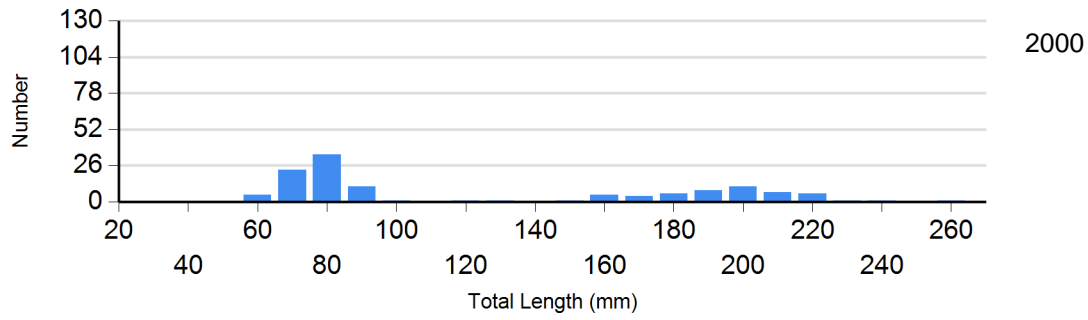


Site: 977
Species: White Sucker

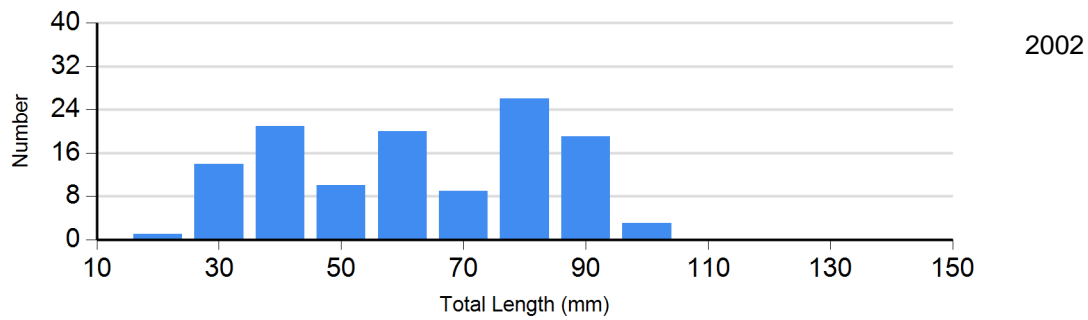
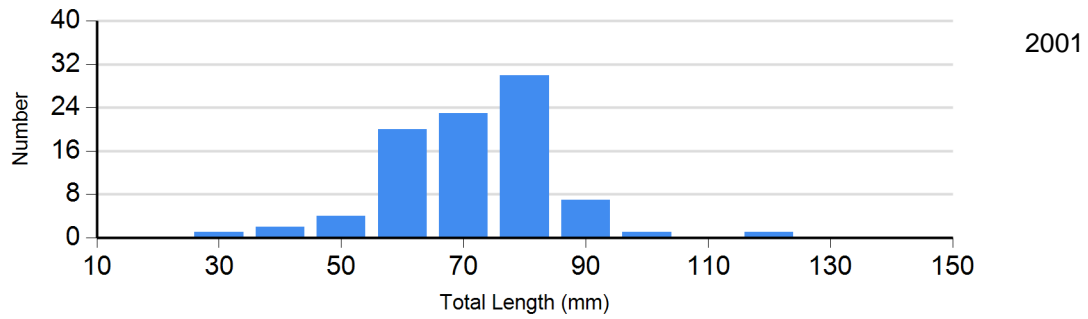
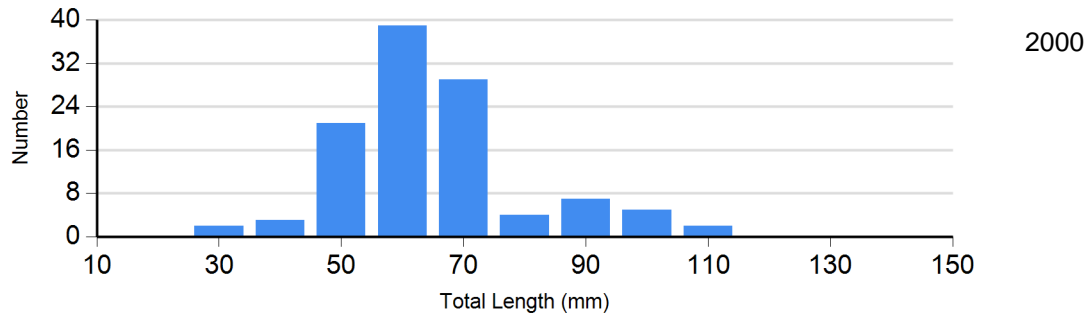
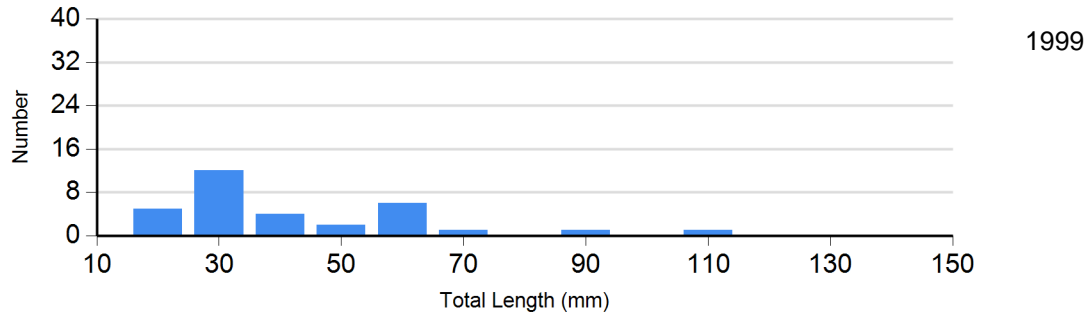


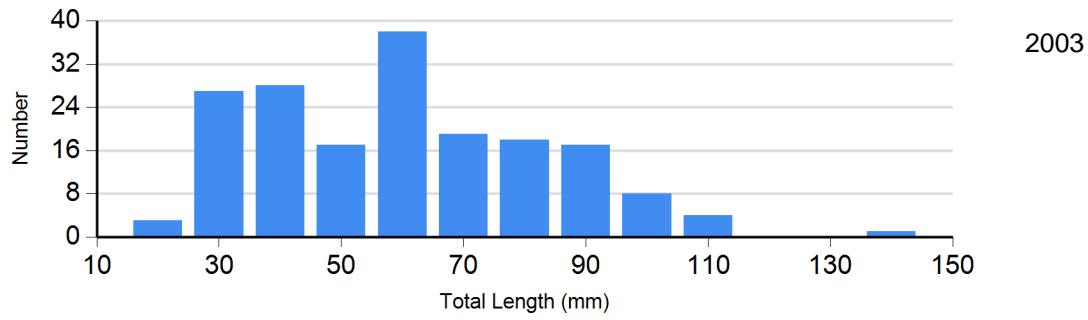
Site: 985
Species: Brook Trout



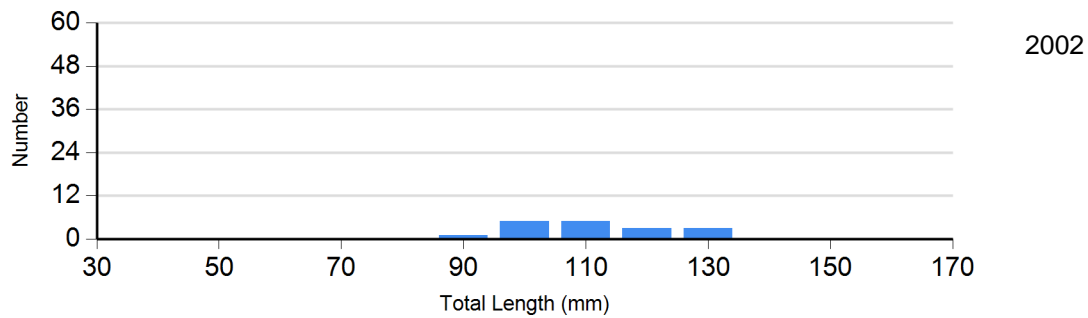
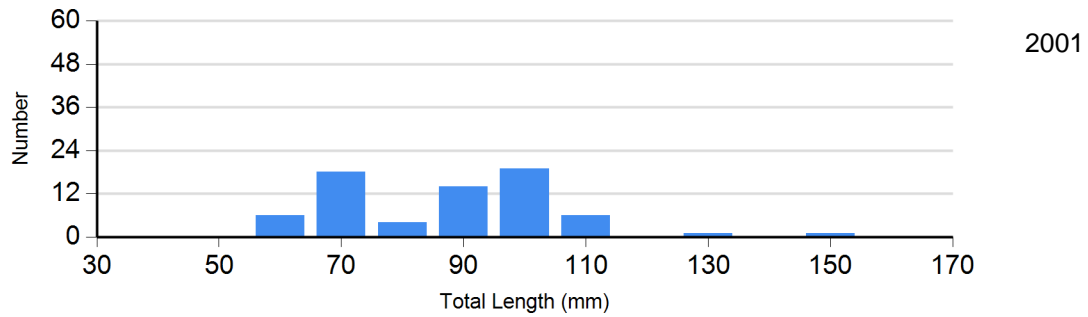
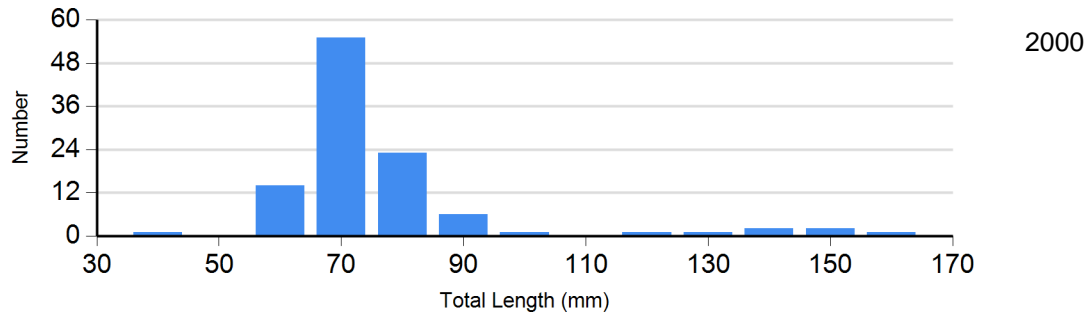


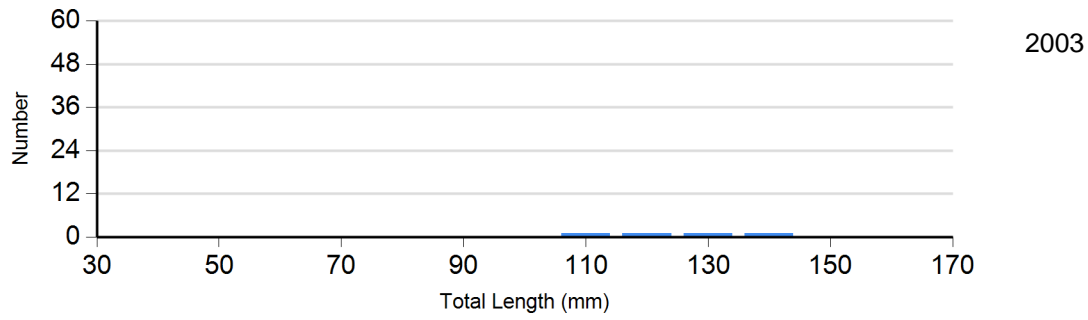
Site: 985
Species: Longnose Dace



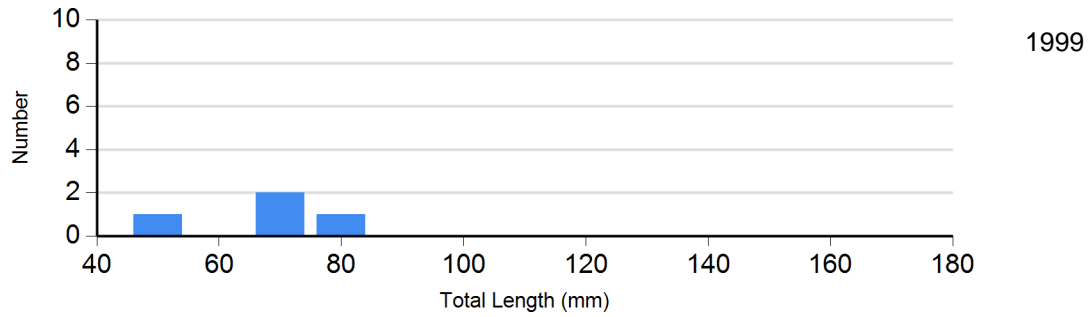


Site: 985
Species: Mountain Sucker

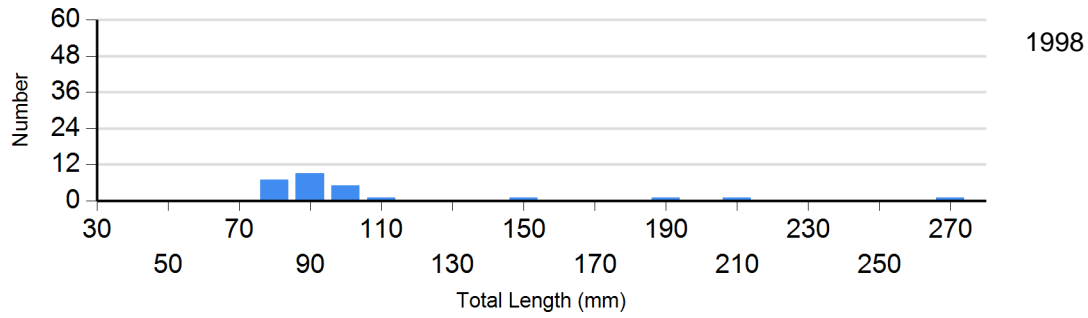


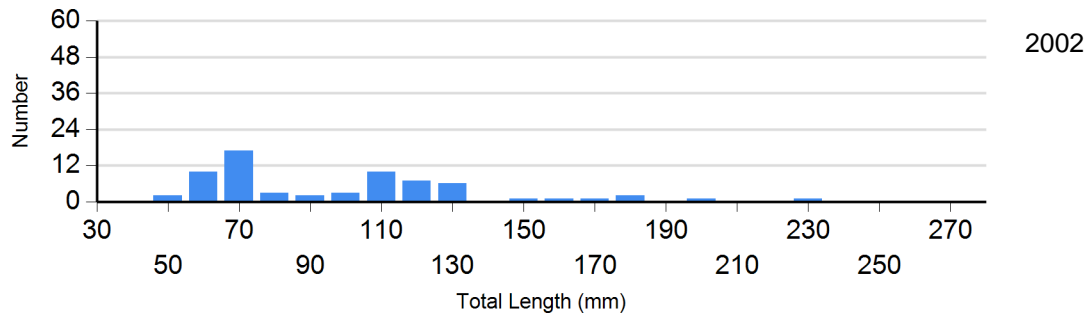
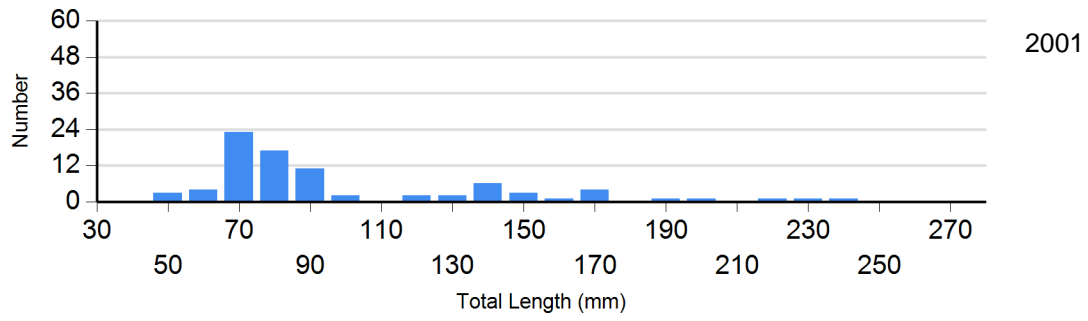
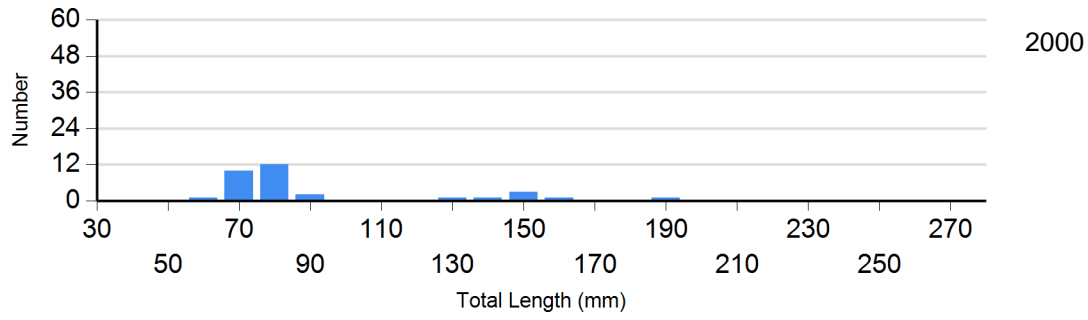
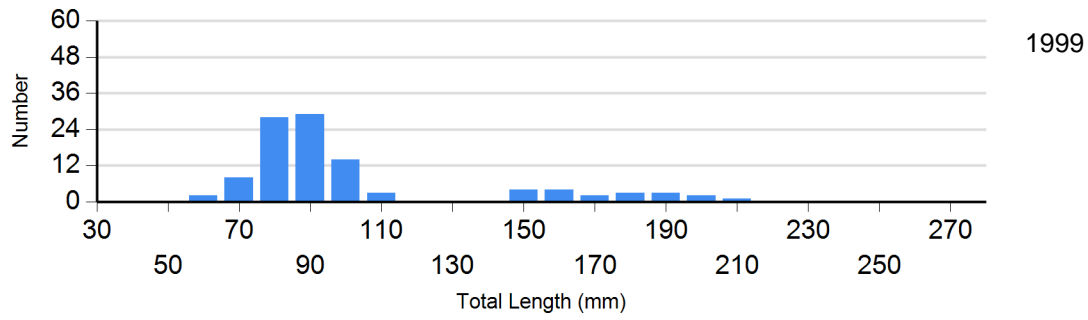


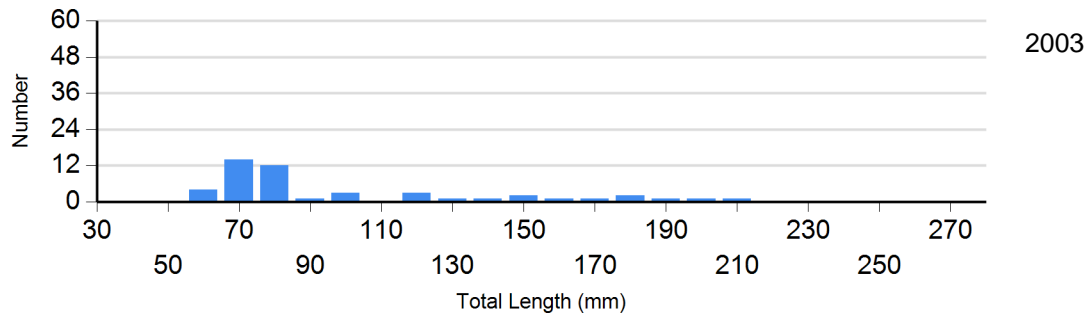
Site: 985
Species: White Sucker



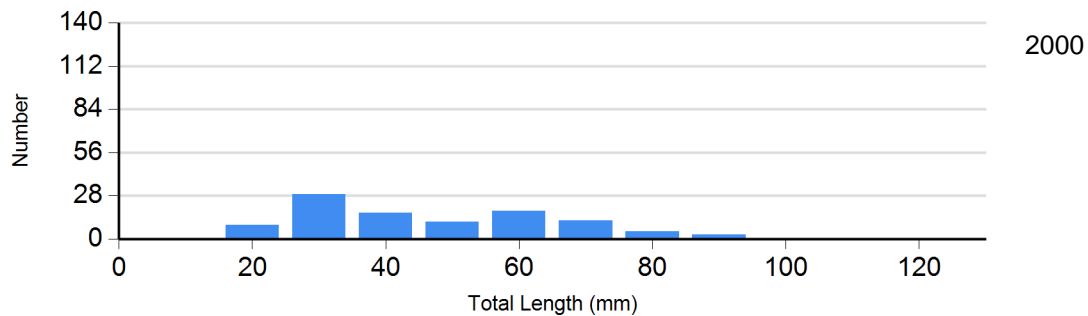
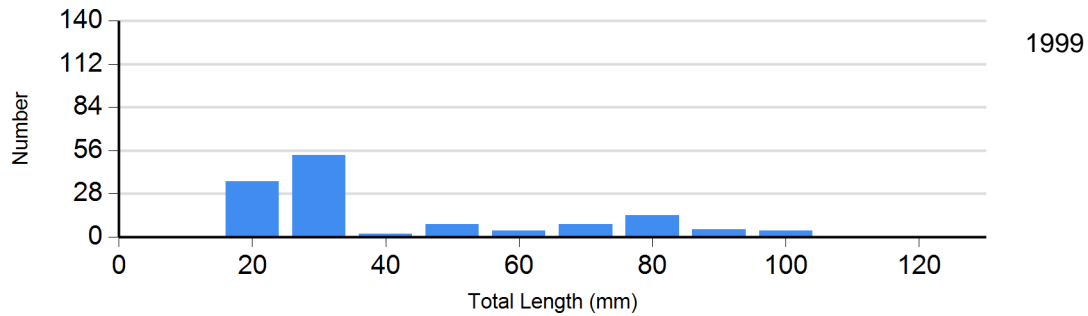
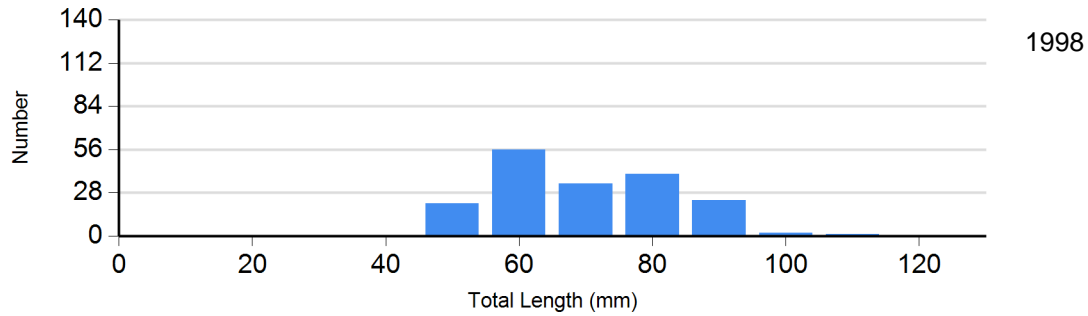
Site: 988
Species: Brook Trout

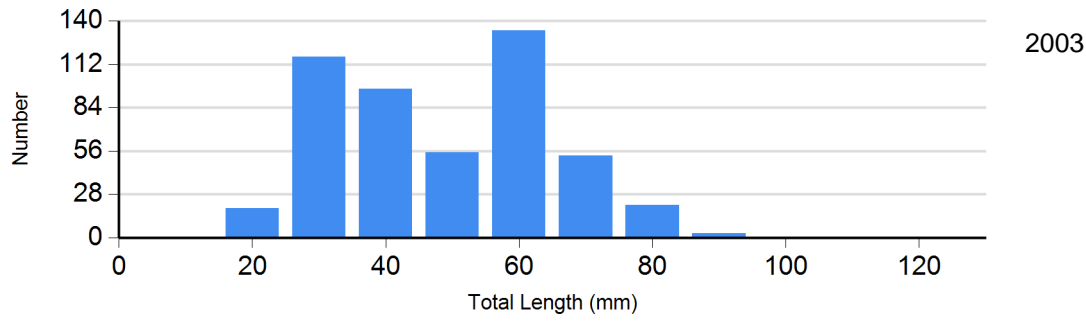
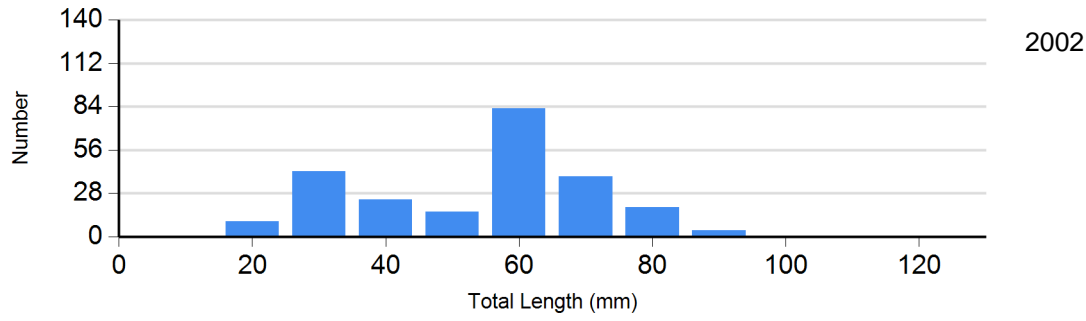
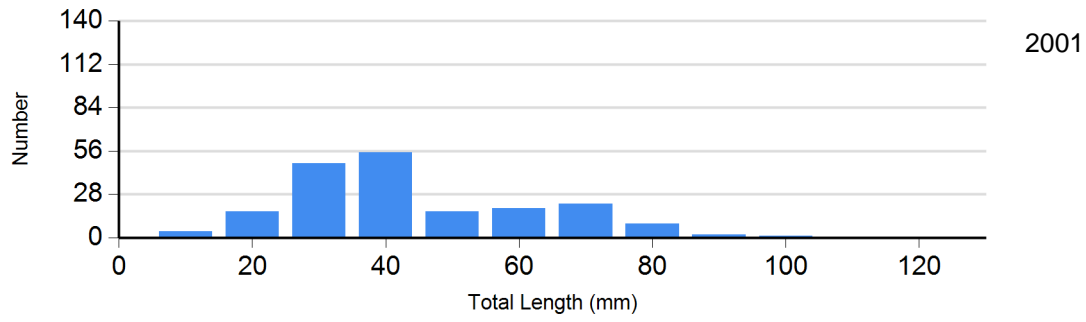




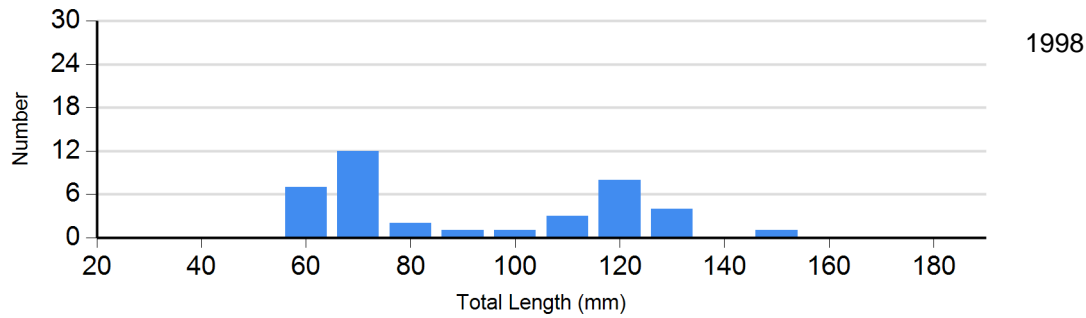


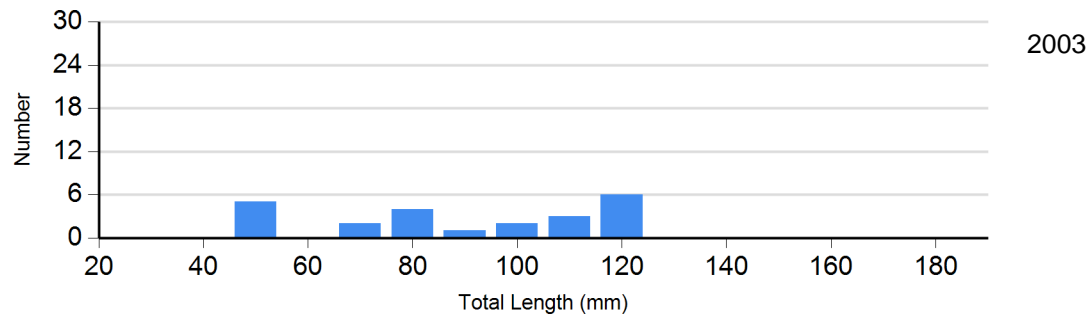
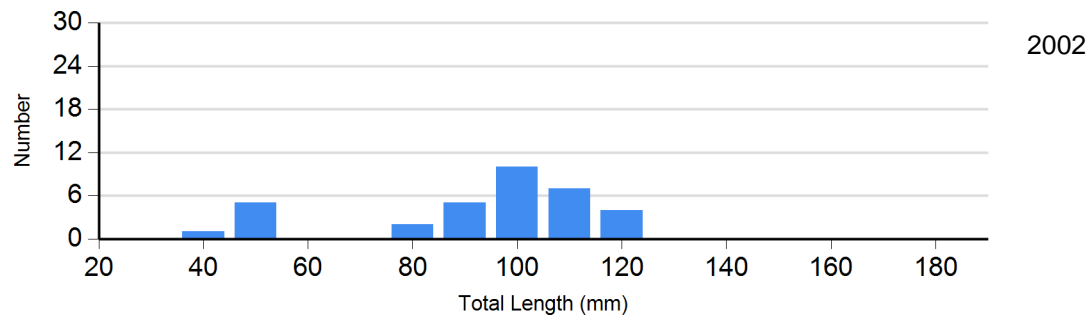
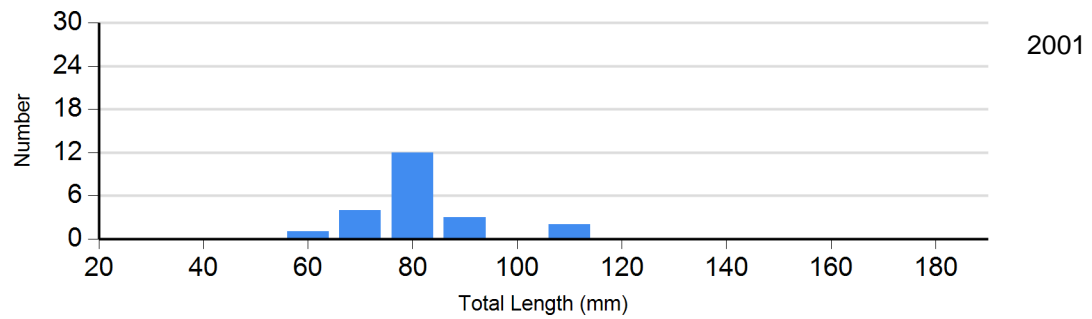
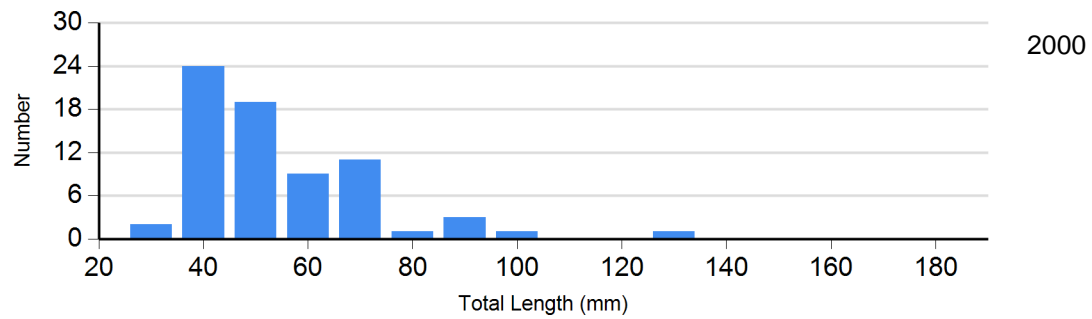
Site: 988
Species: Longnose Dace





Site: 988
Species: Mountain Sucker





Site: 988
Species: White Sucker

