

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Bear Butte Creek, Meade County
49-0023-00
2004

Table 1. Population and Biomass Estimates for Bear Butte Creek

Site Number: 951	Date Sampled: 09/07/2004	Conductivity (umhos/cm): 440
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): 3.0	Water Temperature (C): 12.0
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	112	113	116	112	3790	35	1130	1535	31.09	1818	91.5	9.2
Brook Trout	>=200mm	1	1	2	1	34	3	10	14	2.75	16	212.0	92.0
Brook Trout	All	113	114	117	113	3823	38	1140	1548	33.86	1834	92.6	9.9
Longnose Dace	All	116	120	126	116	4024	19	1200	1630	16.56	1931	61.5	4.6
Mountain Sucker	All	24	24	26	24	805	4	240	326	3.65	386	77.5	5.1

Site Number: 955	Date Sampled: 09/07/2004	Conductivity (umhos/cm): 500
Site Midpoint (Latitude, Longitude): 44.33484568, -103.62910289	Site Length (m): 100	pH: 8.6
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 3.2	Water Temperature (C): 13.5
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	203	205	208	203	6334	59	2050	2565	52.91	3298	91.0	9.4
Brook Trout	>=200mm	4	4	4	4	124	10	40	50	9.35	64	202.5	84.8
Brook Trout	All	207	208	211	207	6427	69	2080	2603	62.04	3347	93.2	10.8

Longnose Dace	All	248	279	300	258	8621	48	2790	3491	43.17	4489	70.5	5.6
Mountain Sucker	All	32	34	39	32	1051	8	340	425	7.10	547	79.0	7.6

Site Number: 976

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2, RB0

Date Sampled: 09/07/2004

Site Length (m): 100

Mean Width (m): 2.7

Number of Pass: 4

Conductivity (umhos/cm): 430

pH: 8.9

Water Temperature (C): 15.0

Voltage: 300

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brook Trout	<200mm	168	175	183	168	6374	56	1750	2582	50.24	2816	89.7	8.8
Brook Trout	>=200mm	7	7	7	7	255	28	70	103	25.40	113	219.0	111.6
Brook Trout	All	175	181	188	175	6593	85	1810	2670	76.15	2912	94.9	12.9
Longnose Dace	All	163	211	251	171	7685	27	2110	3113	24.25	3395	60.6	3.5
Mountain Sucker	All	7	7	8	7	255	1	70	103	0.88	113	70.0	3.9
Rainbow Trout	<200mm	1	1	1	1	36	1	10	15	1.14	16	145.0	35.0
Rainbow Trout	All	1	1	1	1	36	1	10	15	1.14	16	145.0	35.0

Site Number: 977

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK3

Date Sampled: 09/08/2004

Site Length (m): 100

Mean Width (m): 3.2

Number of Pass: 4

Conductivity (umhos/cm): 400

pH: 8.7

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 Trout	<200mm	131	134	139	131	4199	35	1340	1701	31.68	2156	86.5	8.4
Brook Trout	>=200mm	1	1	5	1	31	3	10	13	2.60	16	207.0	93.0

Brook Trout	All	132	136	141	132	4262	39	1360	1726	34.63	2188	87.4	9.1
Longnose Dace	All	229	268	295	241	8399	29	2680	3402	26.22	4312	58.1	3.5
Mountain Sucker	All	12	13	17	12	407	7	130	165	5.95	209	94.3	16.4

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: 09/08/2004
Site Length (m): 100
Mean Width (m): 2.0
Number of Pass: 4
Conductivity (umhos/cm): 460
pH: 8.8
Water Temperature (C): 16.5
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	351	353	356	351	17491	97	3530	7084	86.77	5680	76.3	5.6
Brook Trout	>=200mm	6	6	6	6	297	24	60	120	21.37	97	208.2	80.5
Brook Trout	All	357	359	362	357	17788	121	3590	7204	108.48	5776	78.5	6.8
Longnose Dace	All	160	164	169	160	8126	36	1640	3291	32.10	2639	73.4	4.4
Mountain Sucker	All	19	21	27	19	1041	33	210	421	29.39	338	142.2	31.6

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: 09/09/2004
Site Length (m): 100
Mean Width (m): 3.0
Number of Pass: 4
Conductivity (umhos/cm): 290
pH: 8.9
Water Temperature (C): 14.0
Voltage: 300

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brook Trout	<200mm	140	140	142	140	4639	30	1400	1879	27.22	2253	83.4	6.6
Brook Trout	All	140	140	142	140	4639	30	1400	1879	27.22	2253	83.4	6.6
Longnose Dace	All	614	641	656	626	21238	45	6410	8601	39.93	10314	56.7	2.1

Mountain Sucker	All	6	6	6	6	199	3	60	81	2.72	97	106.5	15.3
--------------------	-----	---	---	---	---	-----	---	----	----	------	----	-------	------



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, 1994-2004

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	
	Sep 07, 2004	113	112-116	

Brook Trout >=200mm	Sep 17, 1998	1	1-2	BK3
	Sep 26, 2002	5	5-5	BK2
	Sep 15, 2003	1	1-1	BK3
	Sep 07, 2004	1	1-2	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	
	Sep 07, 2004	120	116-126	
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	
	Sep 07, 2004	24	24-26	

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	
	Sep 07, 2004	205	203-208	
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

Brook Trout >=200mm	Sep 15, 2003	3	3-3	BK2
	Sep 07, 2004	4	4-4	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	
	Sep 07, 2004	279	258-300	
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	
	Sep 07, 2004	34	32-39	

Rainbow Trout >=200mm	Sep 10, 1997	1	1-1	RB2
	Sep 26, 2002	1	1-1	RB2

Site 976

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	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	
	Sep 07, 2004	175	168-183	
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
	Sep 07, 2004	7	7-7	BK2
Longnose Dace	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	
	Sep 07, 2004	211	171-251	
Mountain Sucker	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	
	Sep 07, 2004	7	7-8	
Rainbow Trout <200mm	Sep 12, 2000	21	21-22	

Rainbow Trout <200mm	Sep 12, 2002	6	6-6	
	Sep 07, 2004	1	1-1	
Rainbow Trout >=200mm	Sep 13, 1999	2	2-3	RB2
	Sep 12, 2002	1	1-1	RB2

Site 977

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	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	
	Sep 08, 2004	134	131-139	
Brook Trout >=200mm	Sep 09, 1997	5	5-5	BK2
	Sep 12, 2000	8	8-8	BK2
	Sep 12, 2002	10	10-10	BK2

Brook Trout >=200mm	Sep 16, 2003	3	3-3	BK2
	Sep 08, 2004	1	1-5	BK3
Longnose Dace	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	
	Sep 08, 2004	268	241-295	
Mountain Sucker	Sep 09, 1997	28	21-45	
	Sep 12, 2000	38	36-43	
	Sep 12, 2002	22	21-26	
	Sep 16, 2003	18	18-20	
	Sep 08, 2004	13	12-17	
Rainbow Trout <200mm	Sep 12, 2000	26	26-27	
	Sep 12, 2002	3	3-3	
Rainbow Trout >=200mm	Sep 20, 1994	1	1-1	RB2

Rainbow Trout >=200mm	Sep 23, 1996	2	2-2	RB2
	Sep 14, 1999	1	1-1	RB2
	Sep 12, 2002	1	1-1	RB2

Site 985

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
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	
	Sep 11, 2002	169	169-170	
	Sep 18, 2003	108	107-111	
	Sep 08, 2004	353	351-356	
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

Brook Trout >=200mm	Oct 23, 2001	7	7-7	BK2
	Sep 11, 2002	8	8-8	BK2
	Sep 18, 2003	3	3-3	BK2
	Sep 08, 2004	6	6-6	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	
	Sep 08, 2004	164	160-169	
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	

Mountain Sucker	Oct 23, 2001	78	70-89	
	Sep 11, 2002	17	17-17	
	Sep 18, 2003	4	4-5	
	Sep 08, 2004	21	19-27	
Rainbow Trout <200mm	Oct 23, 2001	7	7-8	
	Sep 11, 2002	3	3-3	
Rainbow Trout >=200mm	Oct 23, 2001	1	1-1	RB2

Site 988

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	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	

Brook Trout <200mm	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	
	Sep 09, 2004	140	140-142	
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
	Oct 30, 2001	4	4-4	BK2
	Sep 11, 2002	2	2-2	BK3
	Sep 18, 2003	2	2-2	BK2
Longnose Dace	Sep 20, 1994	128	127-131	

Longnose Dace	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
	Sep 13, 2000	1289	1273-1305
	Oct 30, 2001	193	194-217
	Sep 11, 2002	1097	1023-1171
	Sep 18, 2003	773	726-820
	Sep 09, 2004	641	626-656
Mountain Sucker	Jun 06, 1995	14	6-73
	Sep 18, 1995	3	3-3
	Jul 14, 1997	15	16-21

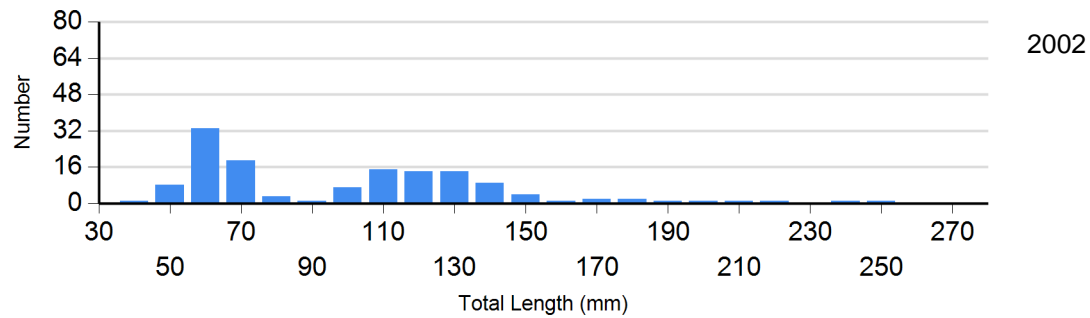
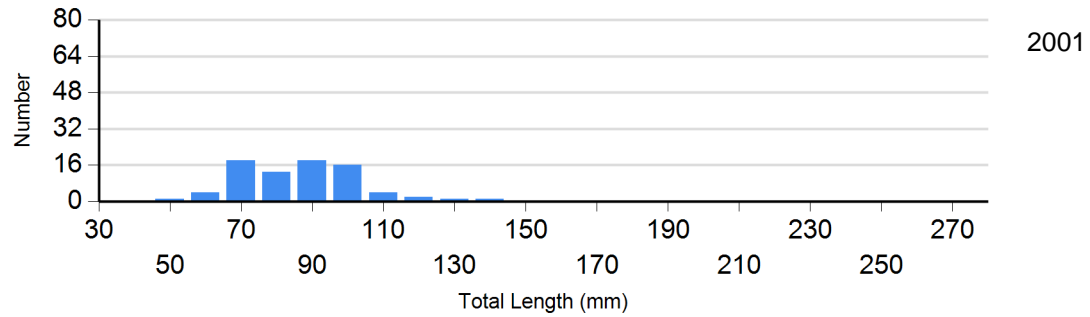
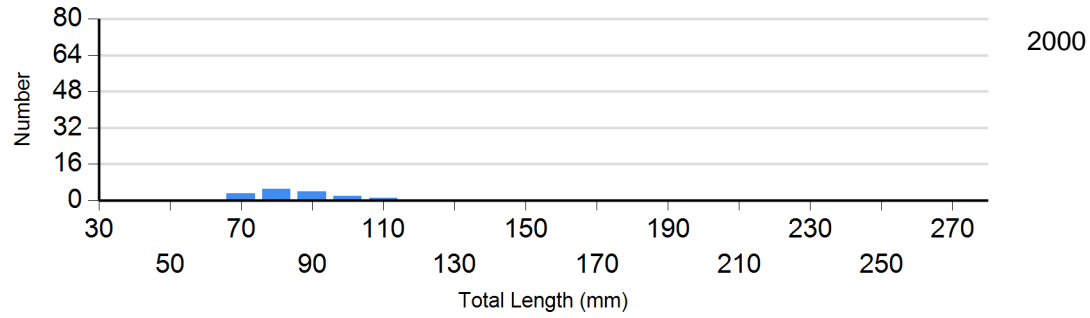
Mountain Sucker	Sep 09, 1997	146	125-167
	Nov 04, 1997	12	12-14
	Sep 14, 1998	43	39-51
	Sep 13, 2000	119	115-125
	Oct 30, 2001	27	22-39
	Sep 11, 2002	35	34-38
	Sep 18, 2003	30	23-46
	Sep 09, 2004	6	6-6

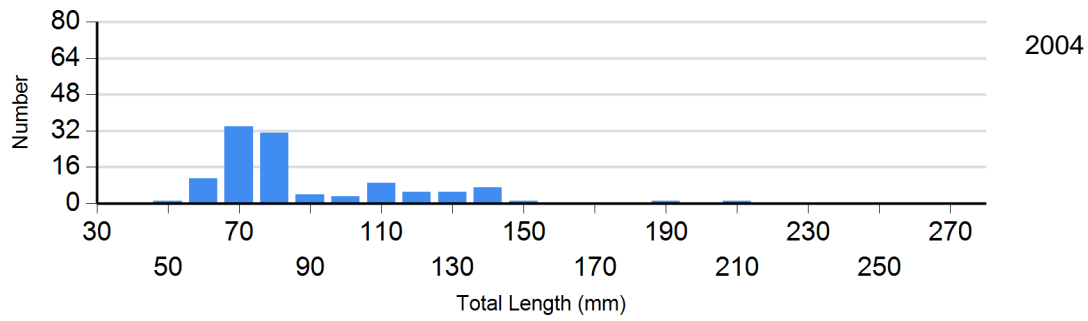
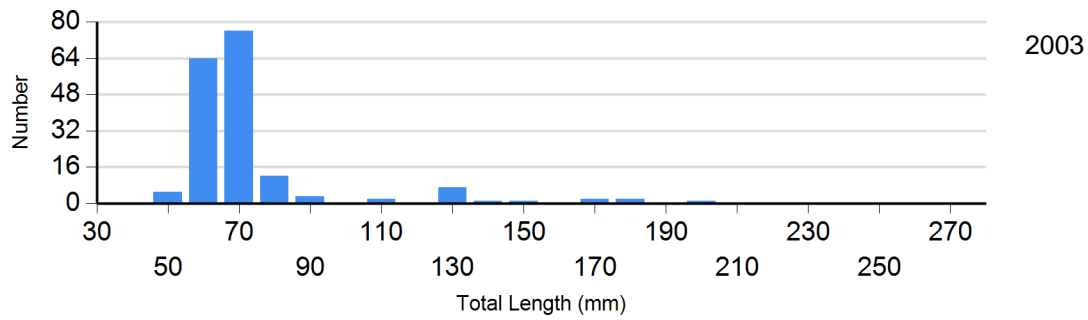
Length Frequency Distribution

Length frequency histogram of species sampled by year.

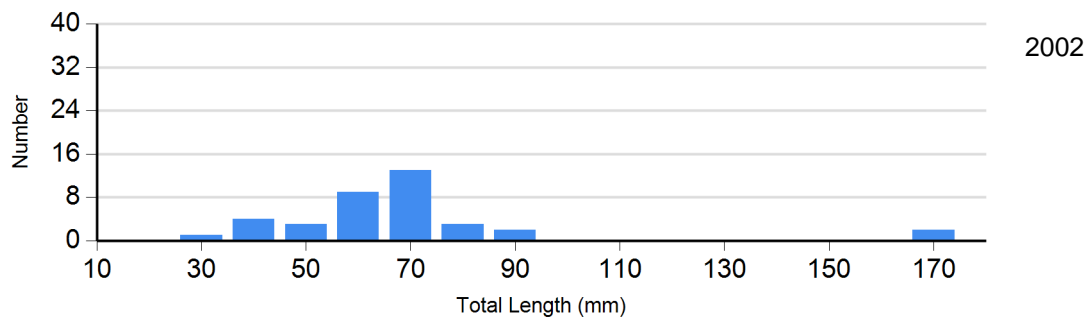
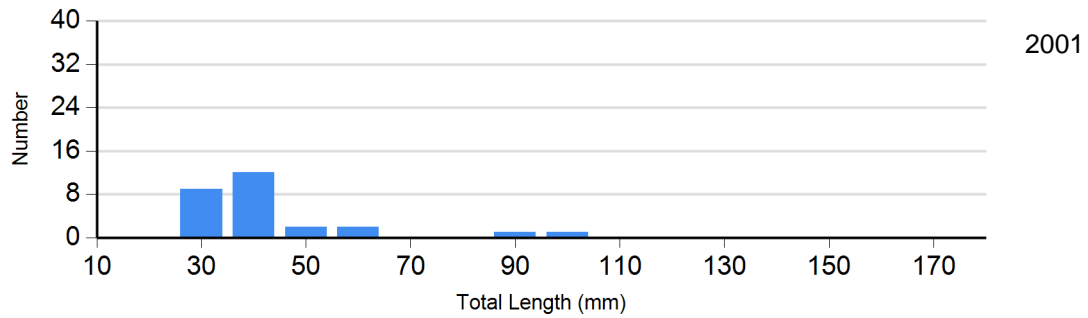
Site: 951

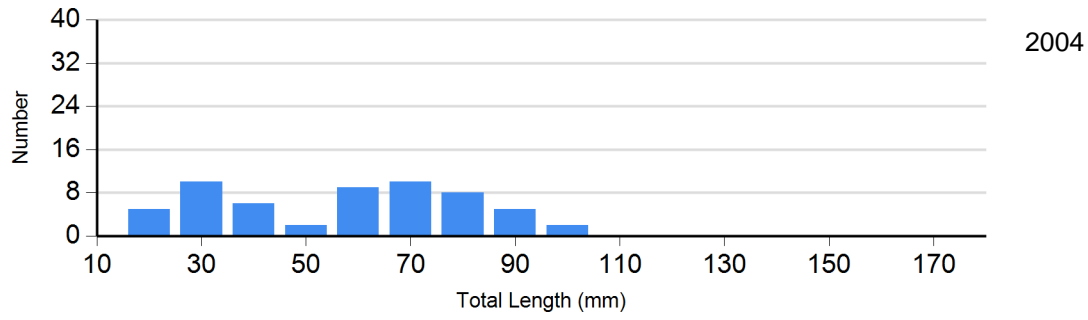
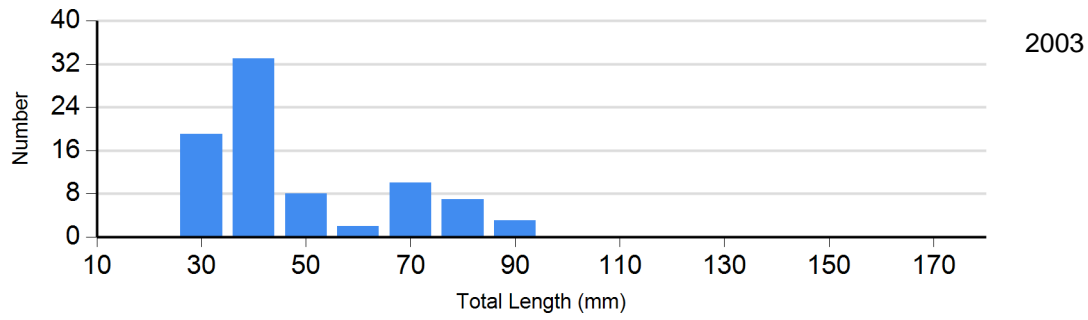
Species: Brook Trout



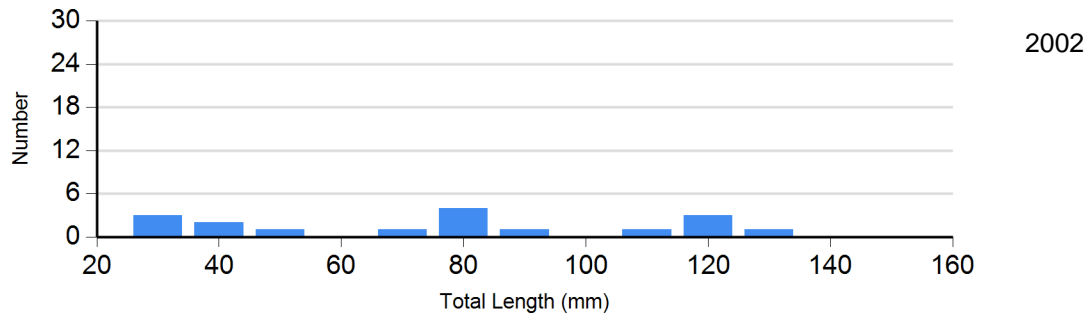
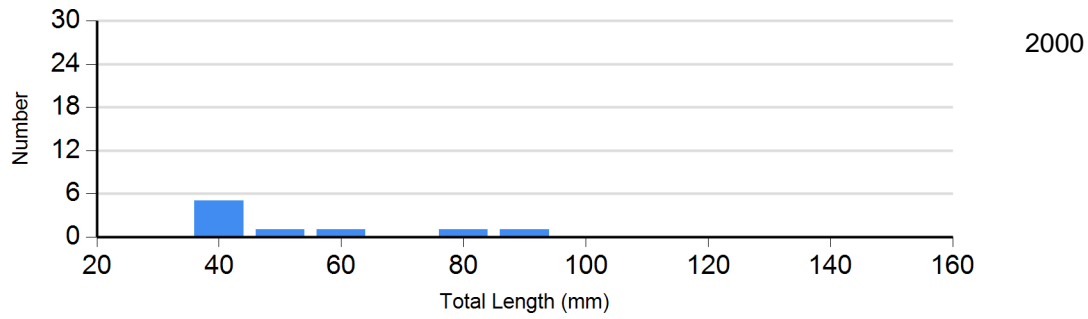


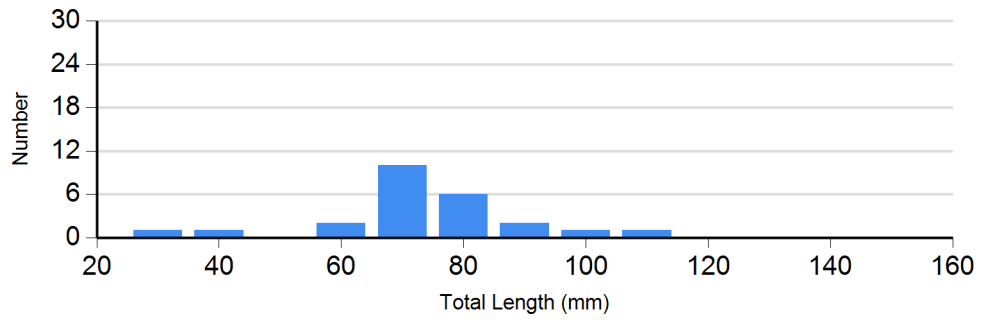
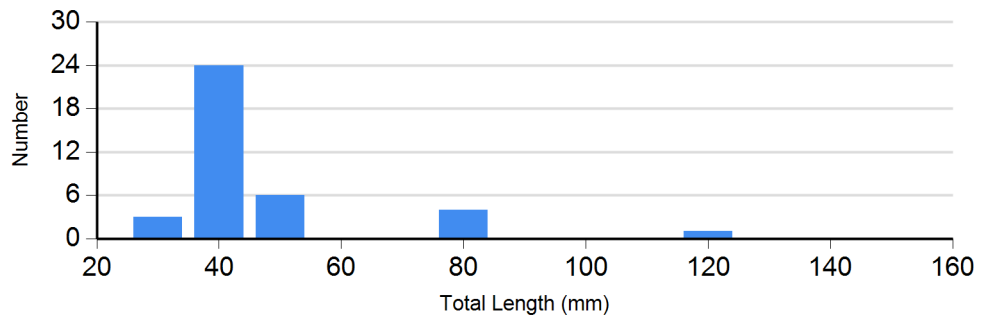
Site: 951
Species: Longnose Dace



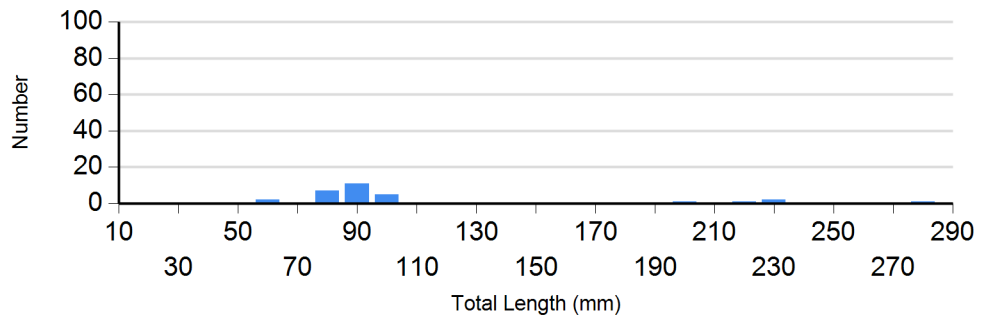
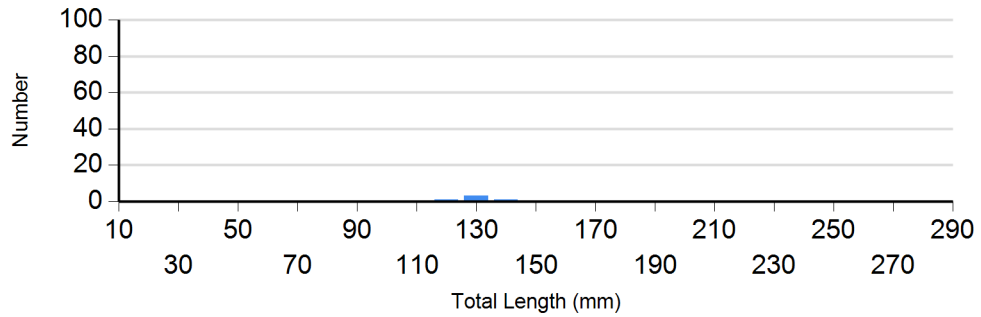


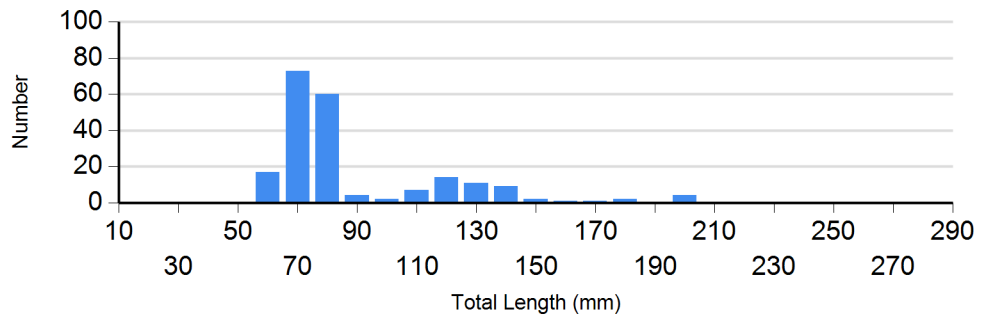
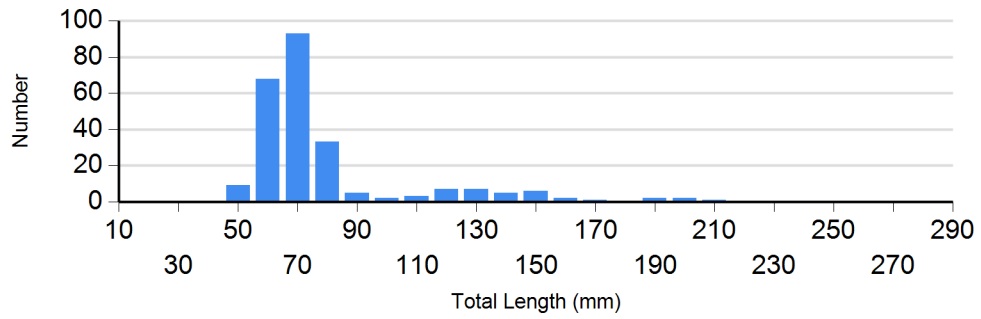
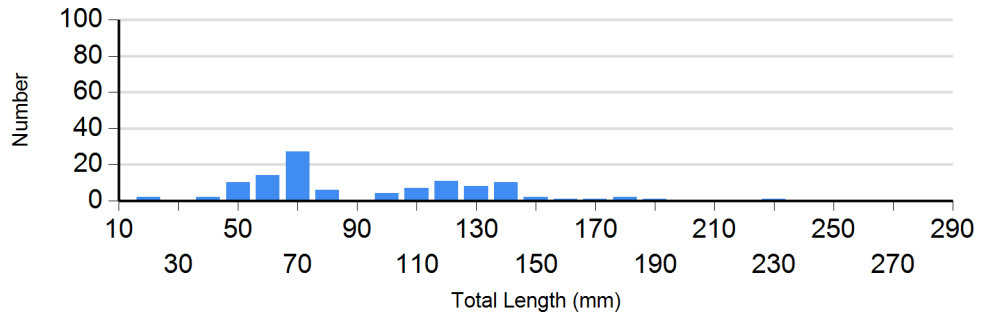
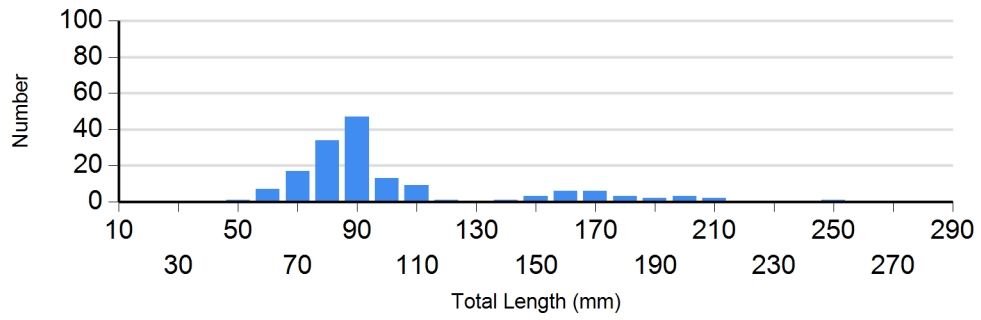
Site: 951
Species: Mountain Sucker



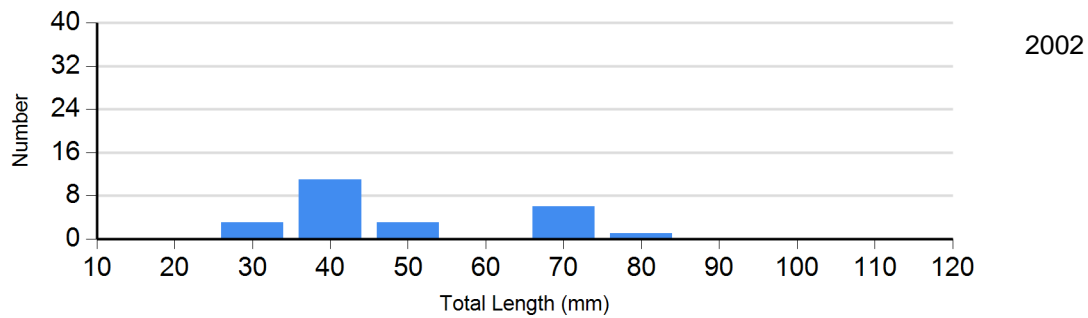
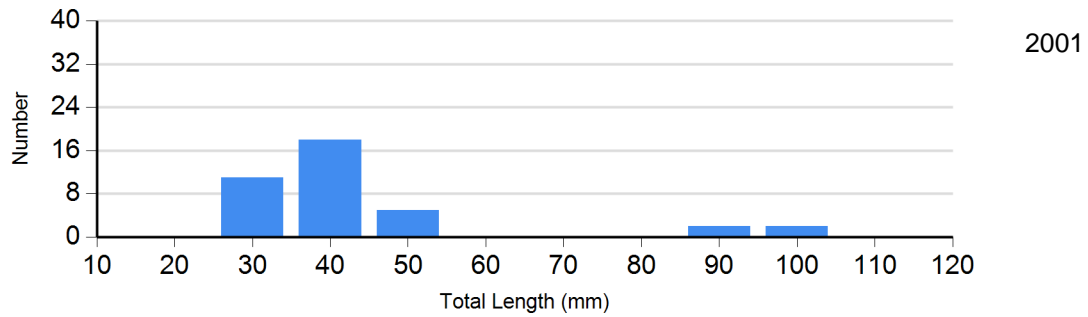
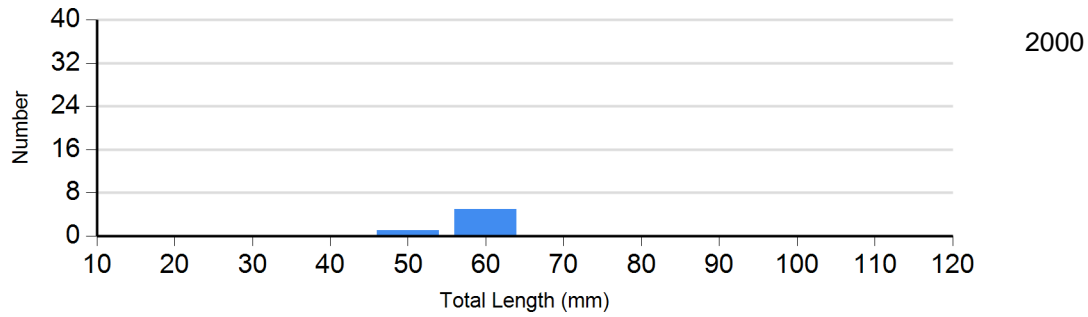
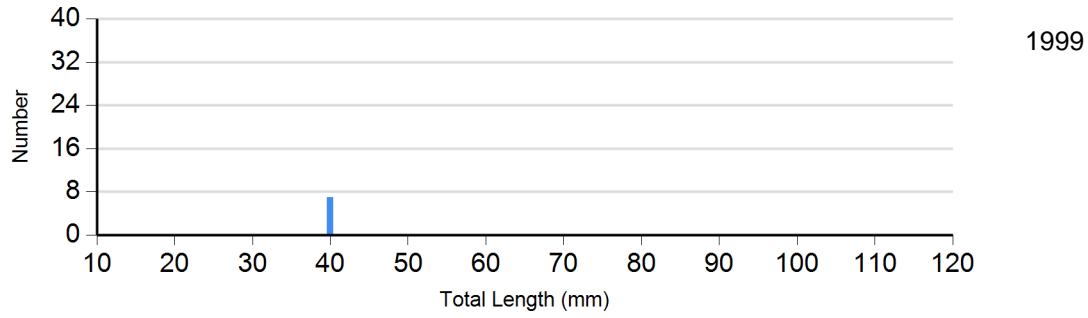


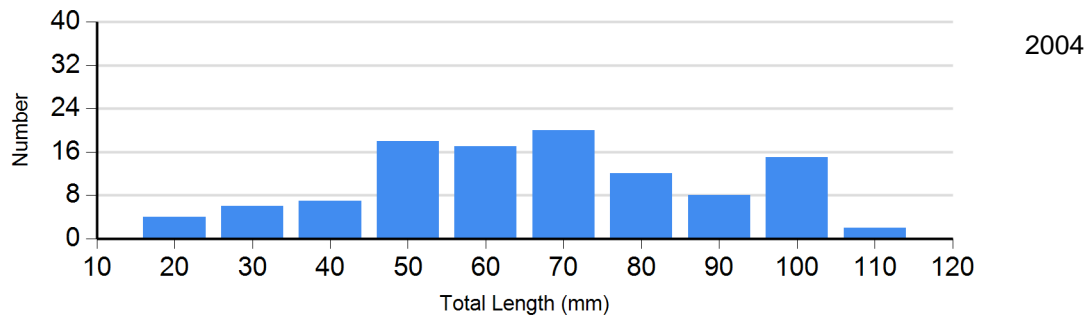
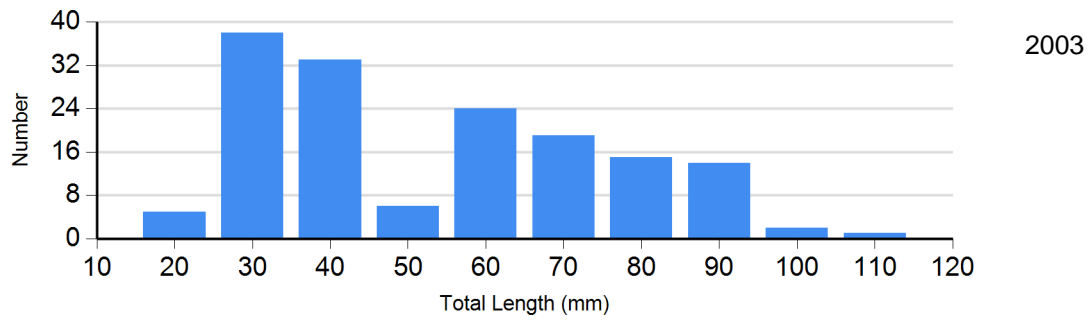
Site: 955
Species: Brook Trout



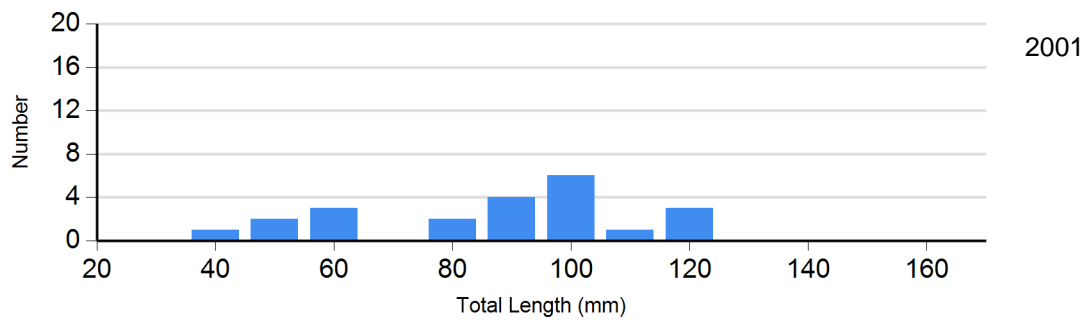
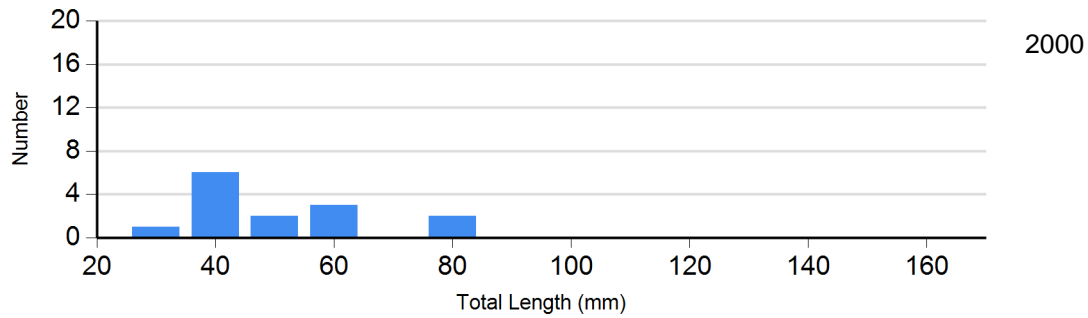


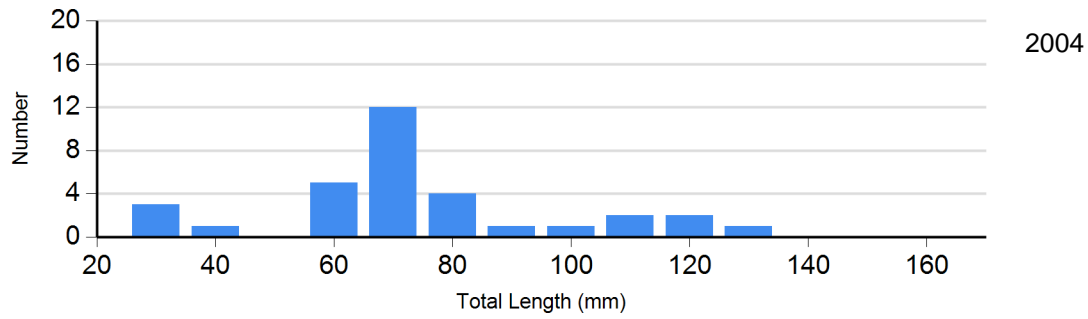
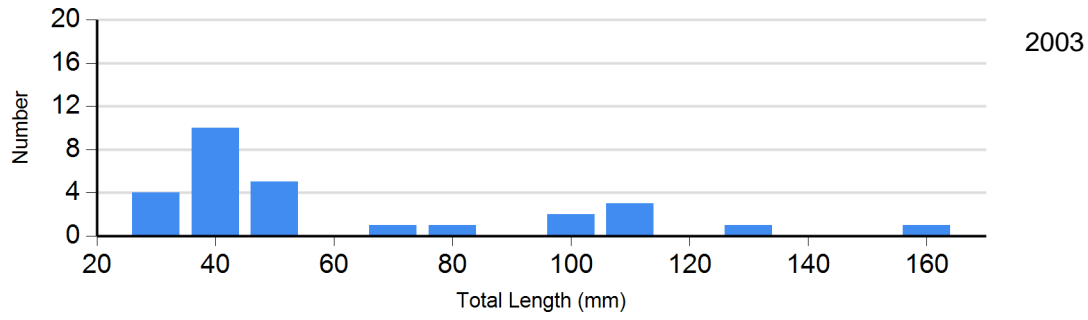
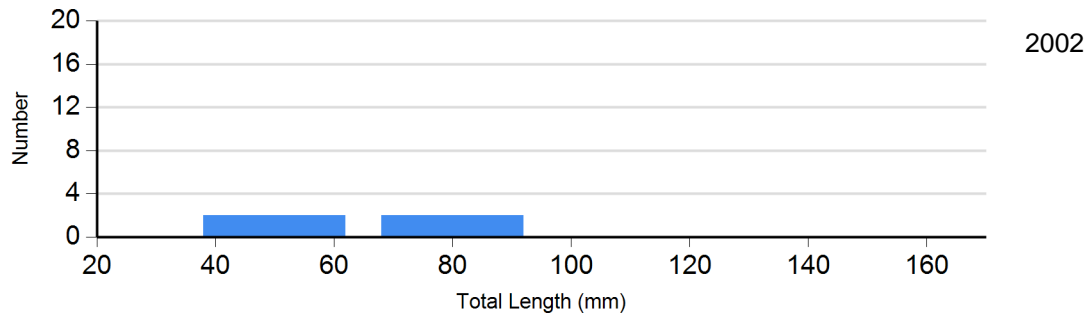
Site: 955
Species: Longnose Dace



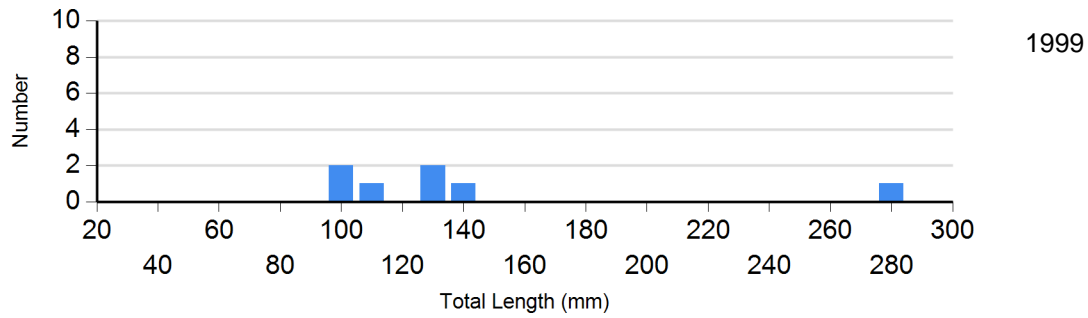


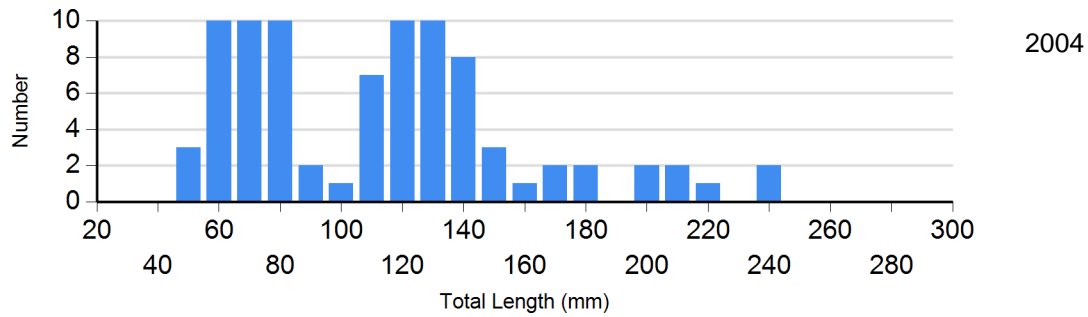
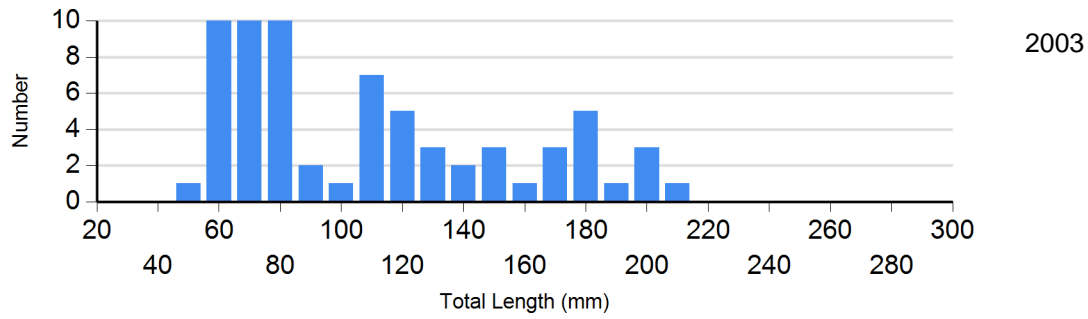
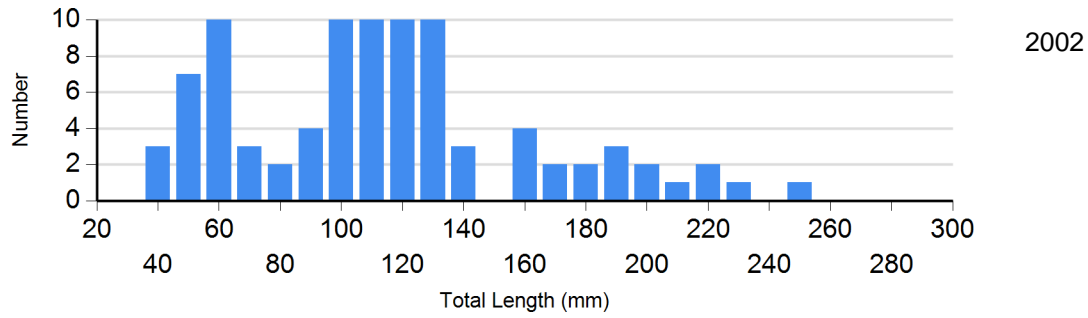
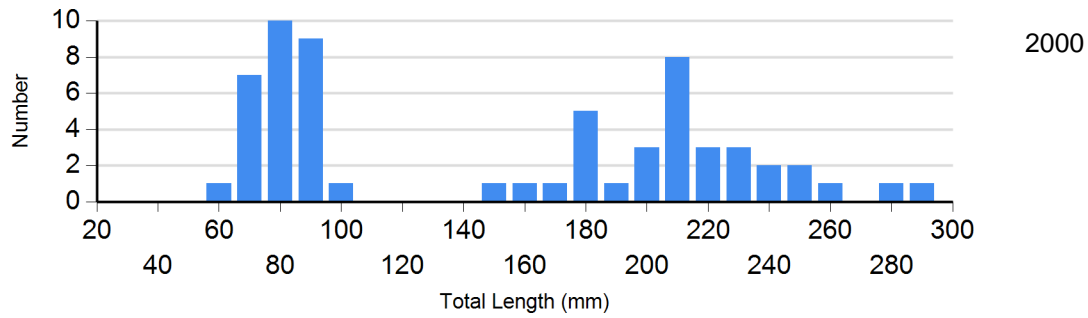
Site: 955
Species: Mountain Sucker



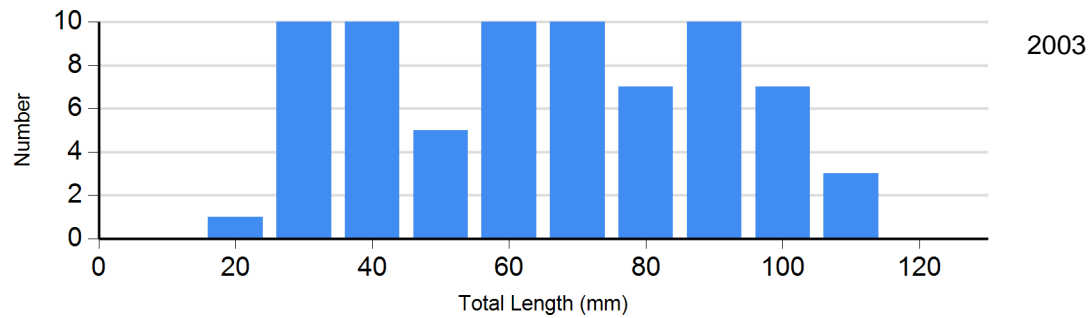
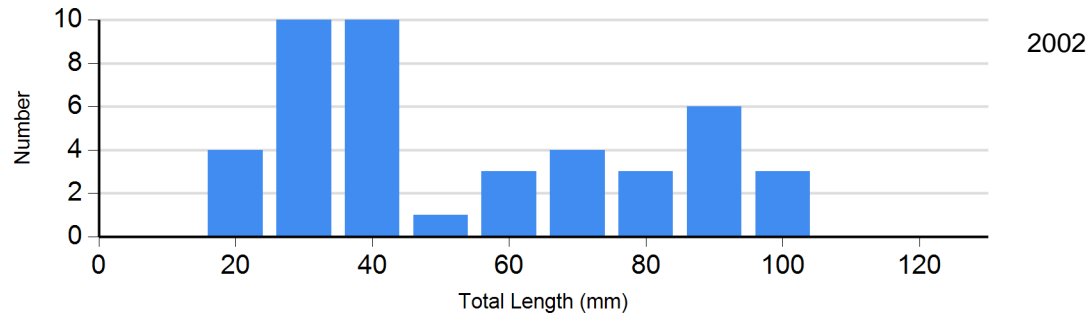
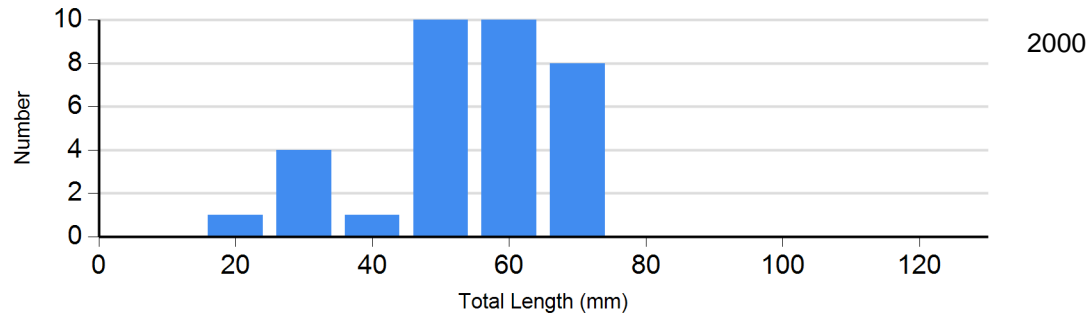
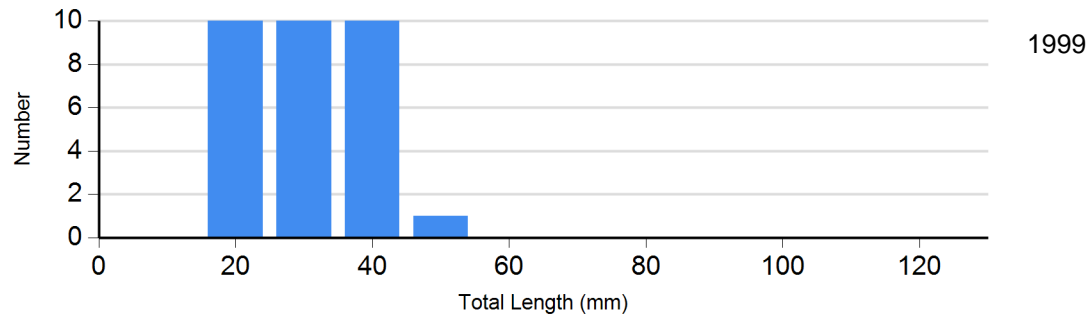


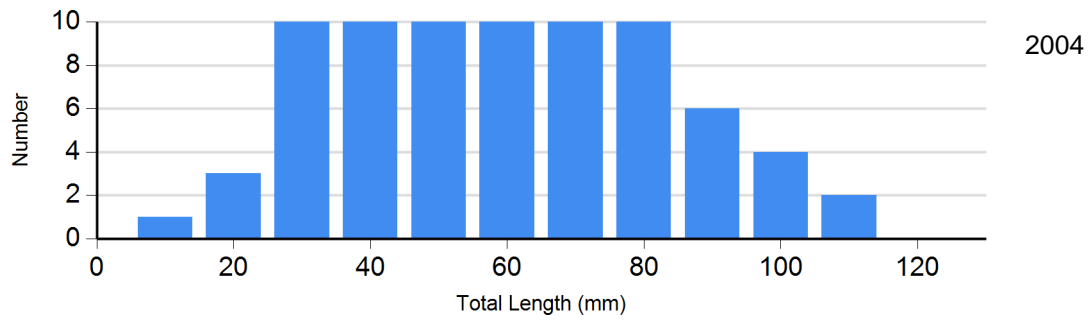
Site: 976
Species: Brook Trout



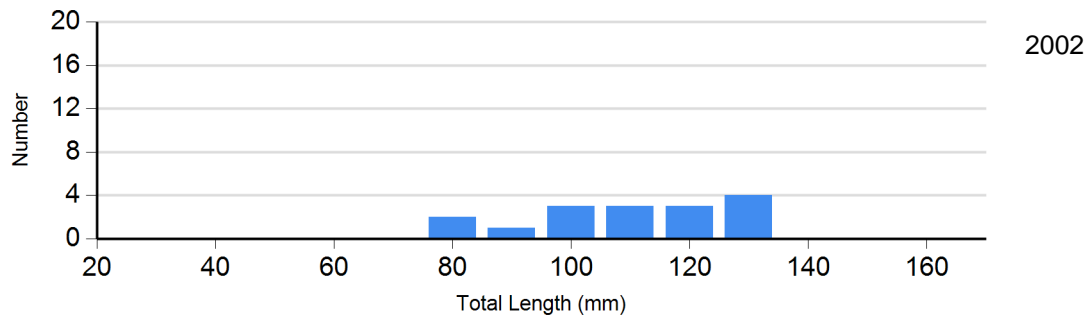
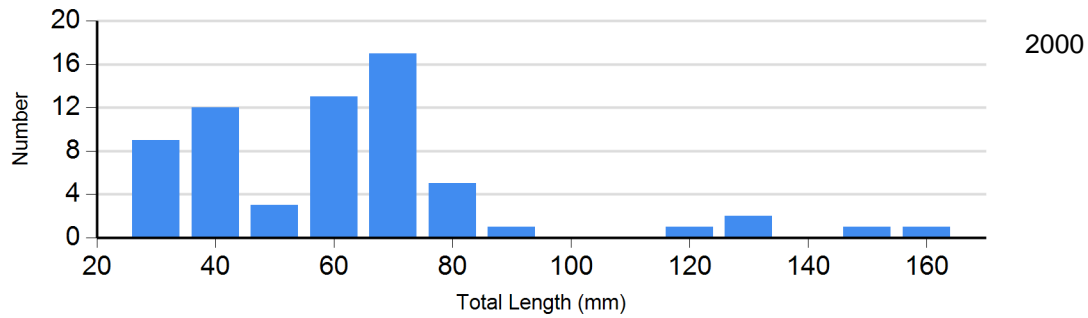
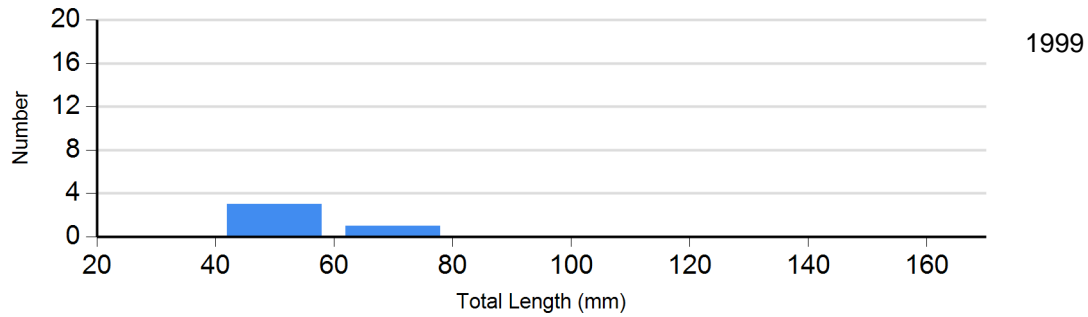


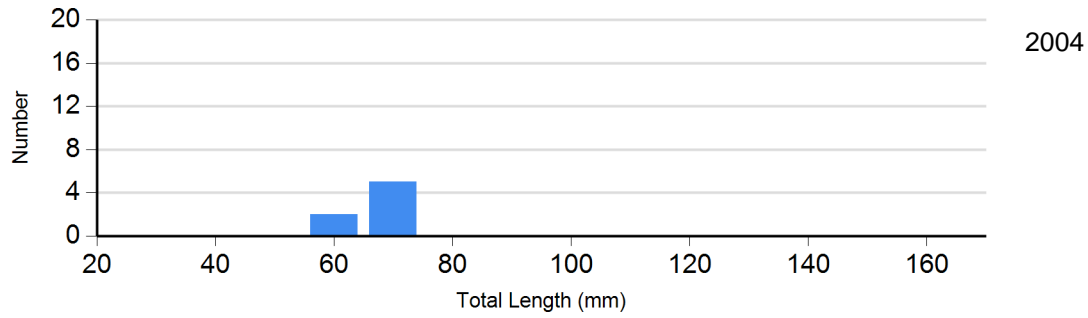
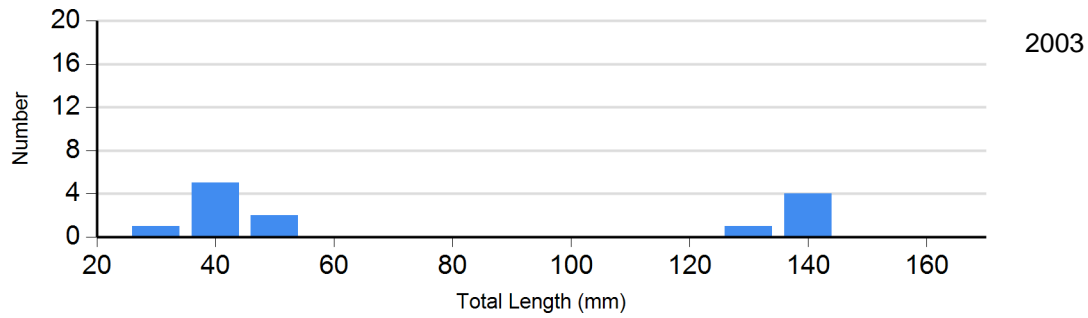
Site: 976
Species: Longnose Dace



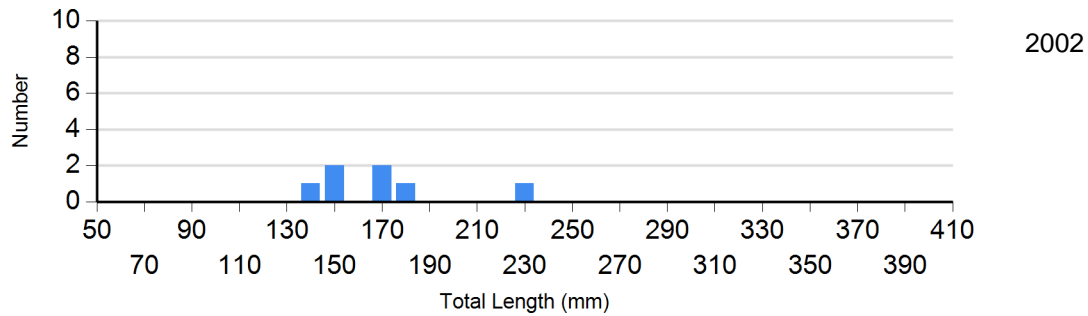
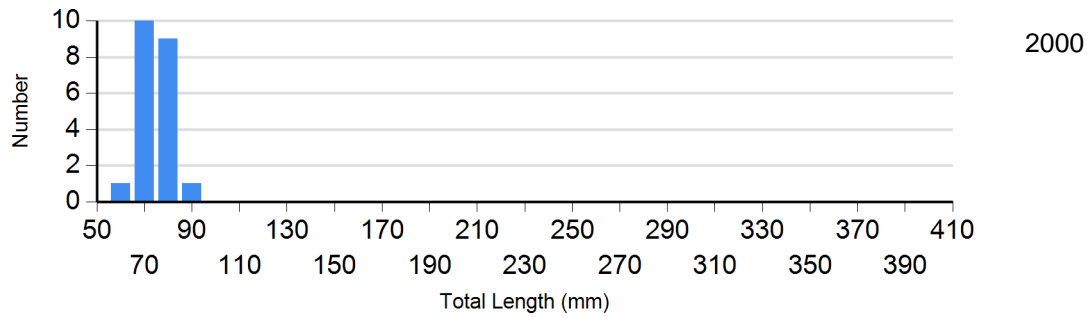


Site: 976
Species: Mountain Sucker

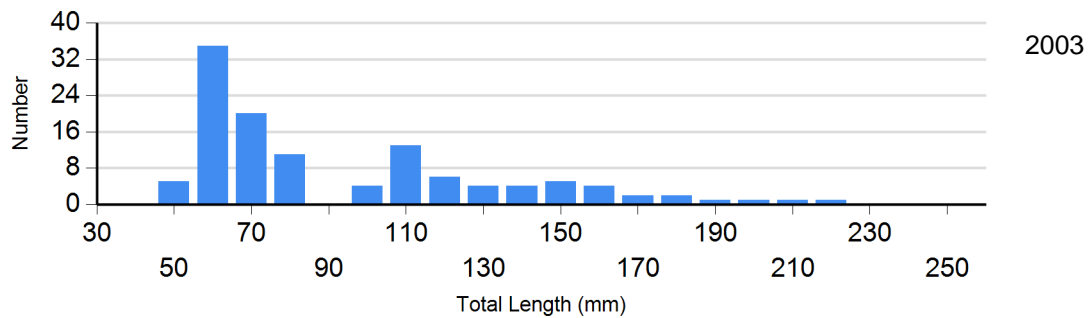
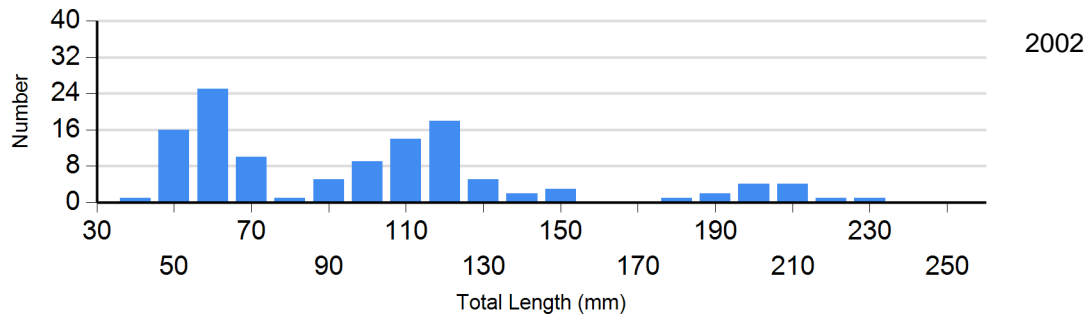
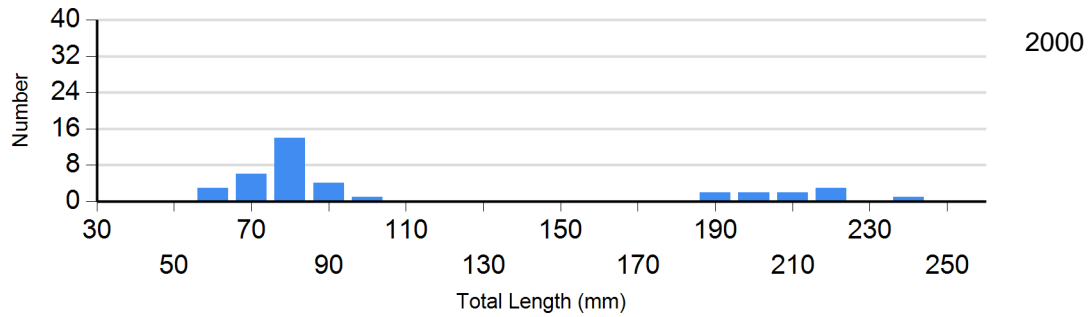
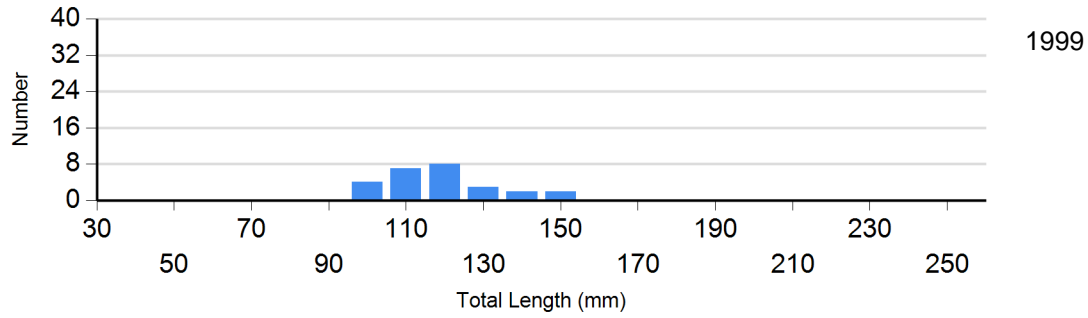


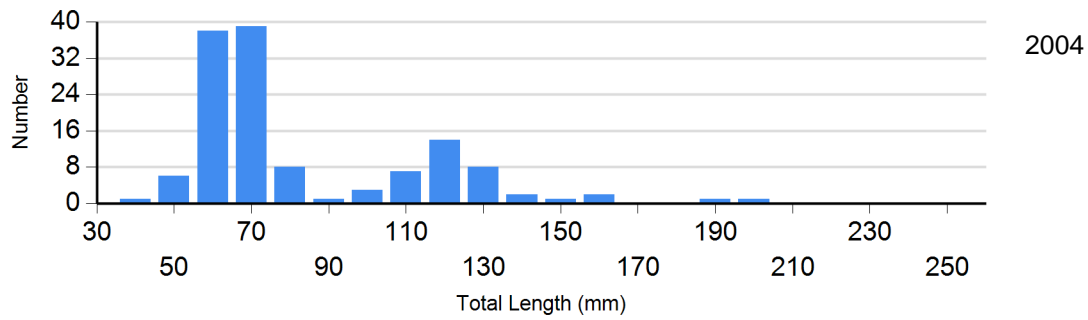


Site: 976
Species: Rainbow Trout

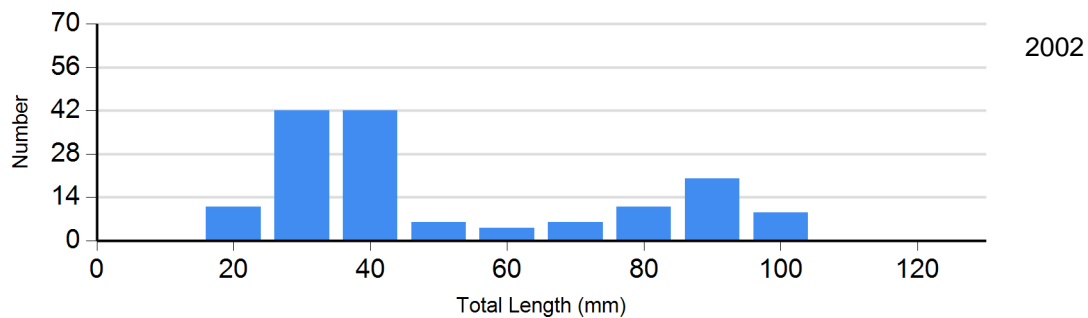
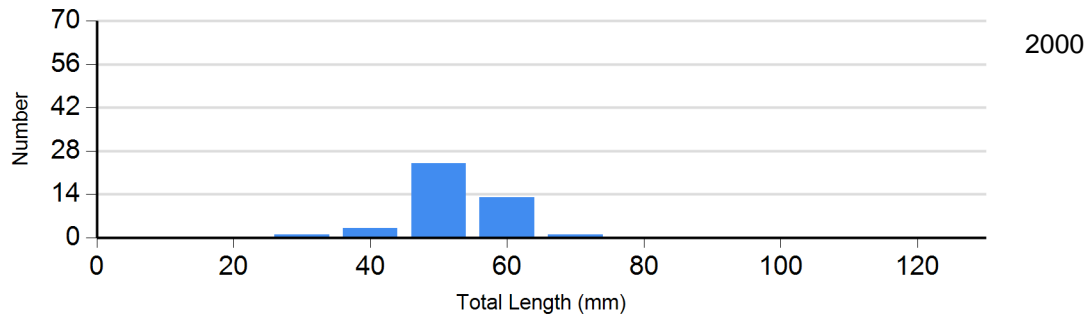
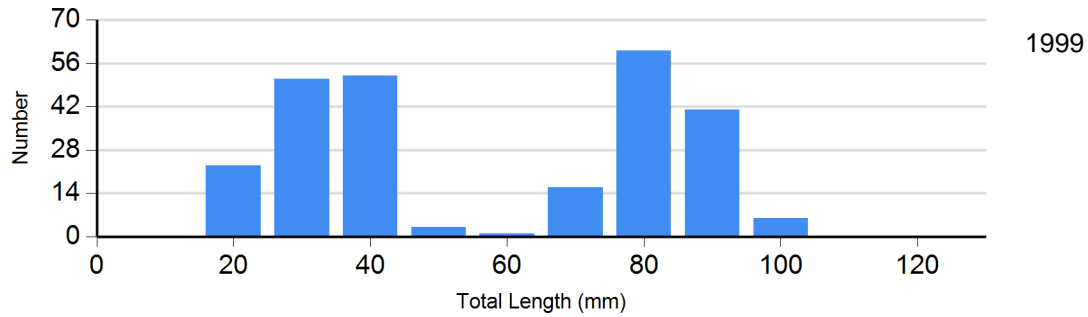


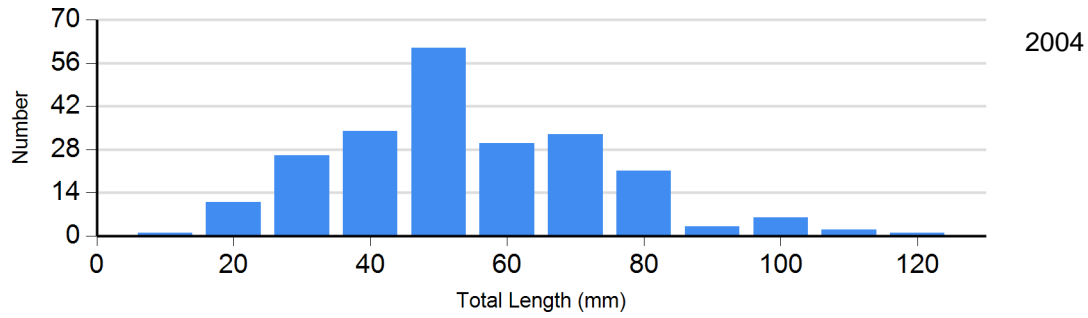
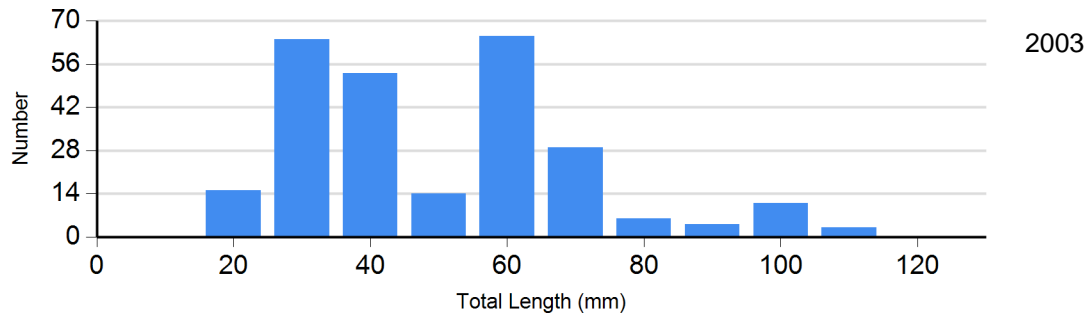
Site: 977
Species: Brook Trout



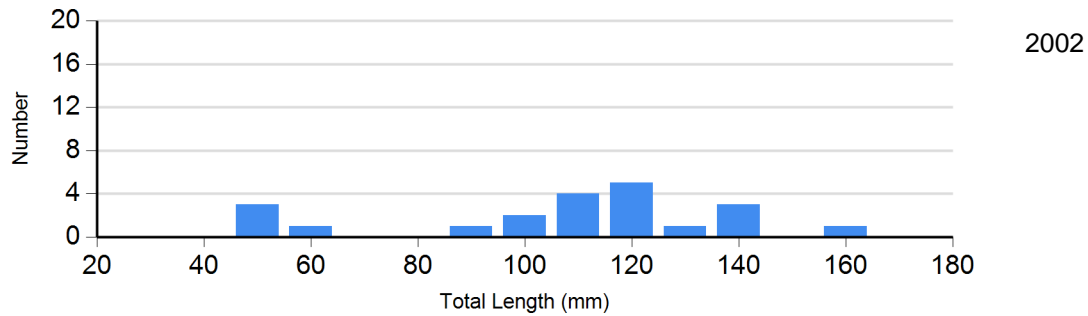
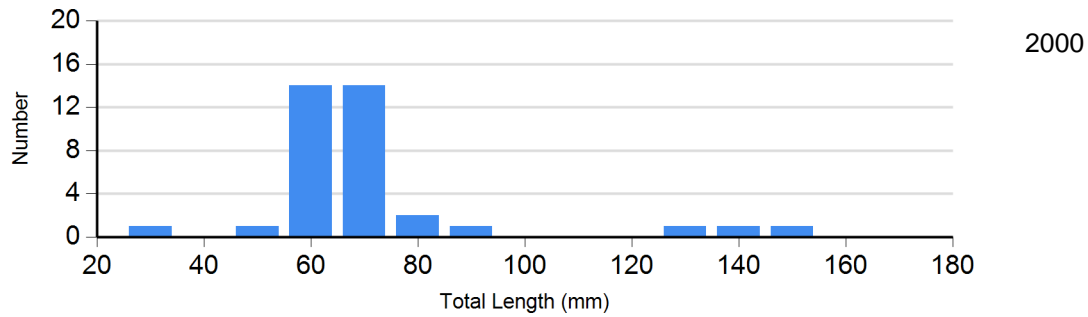


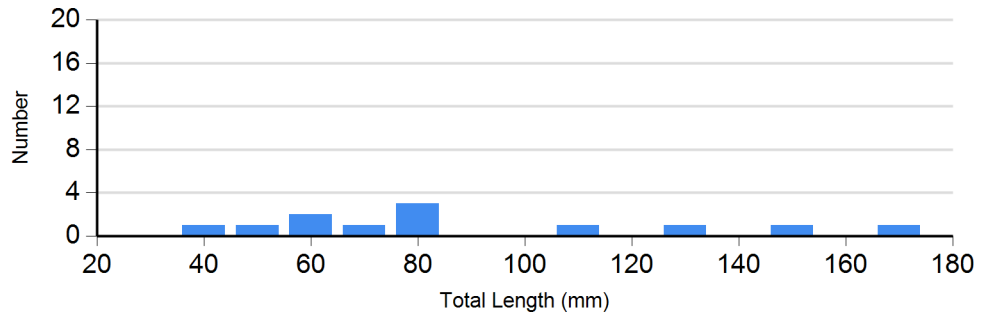
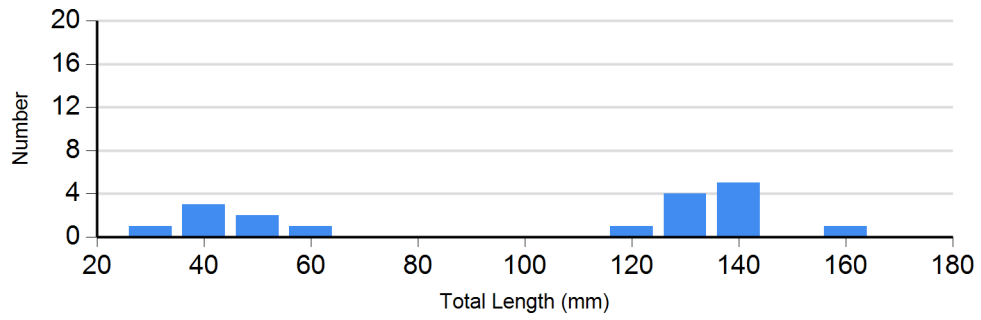
Site: 977
Species: Longnose Dace



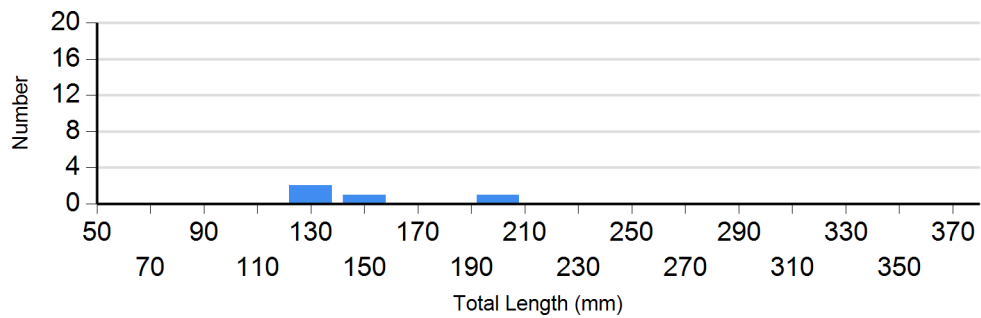
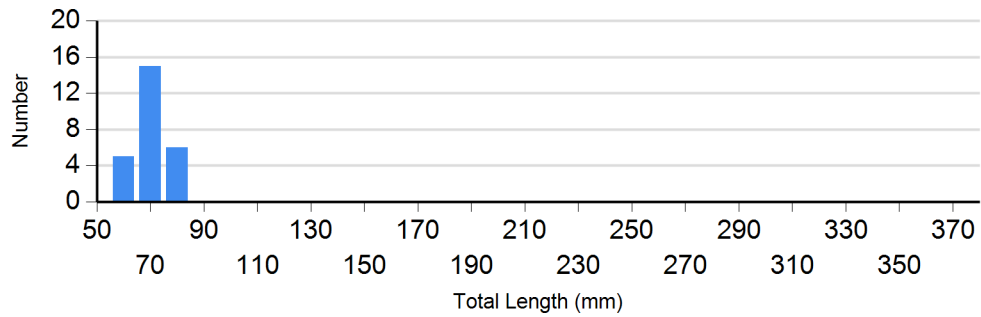


Site: 977
Species: Mountain Sucker

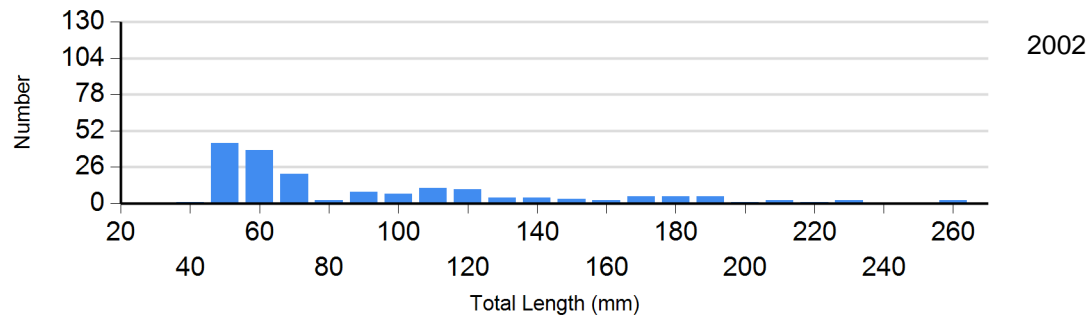
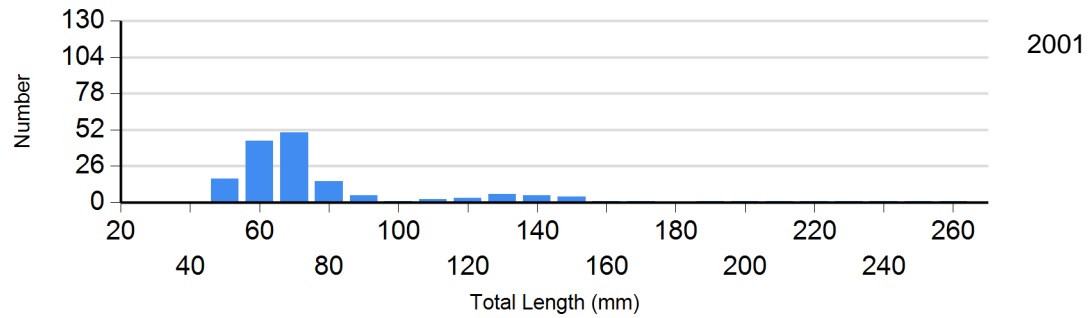
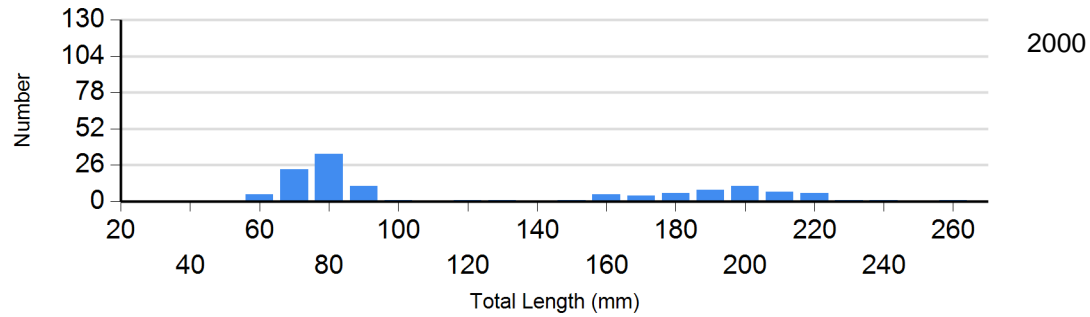
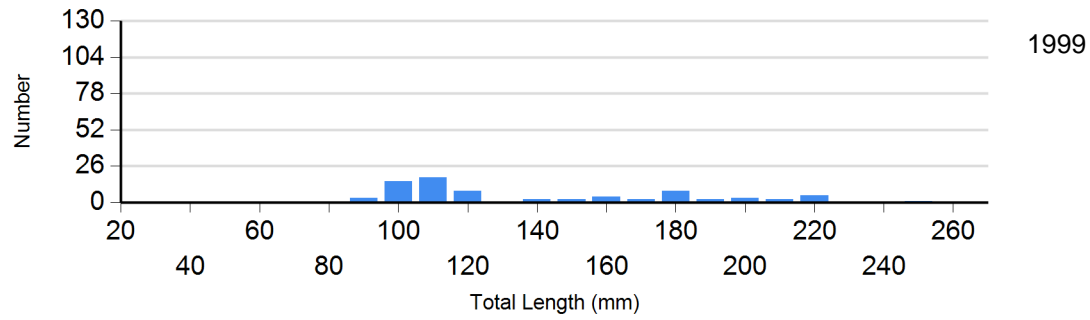


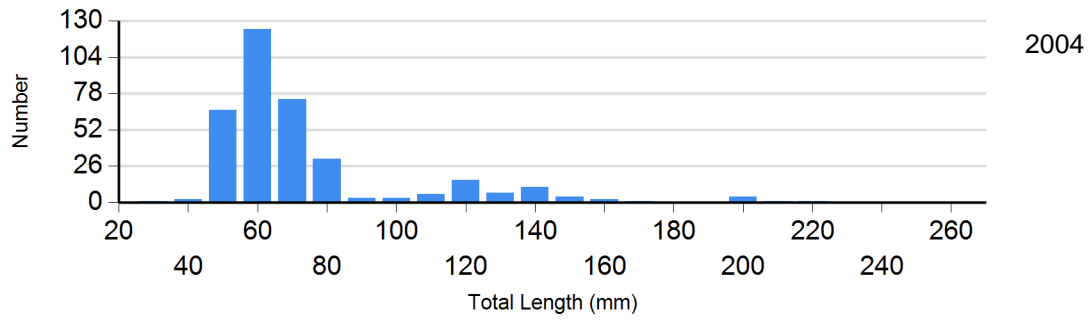
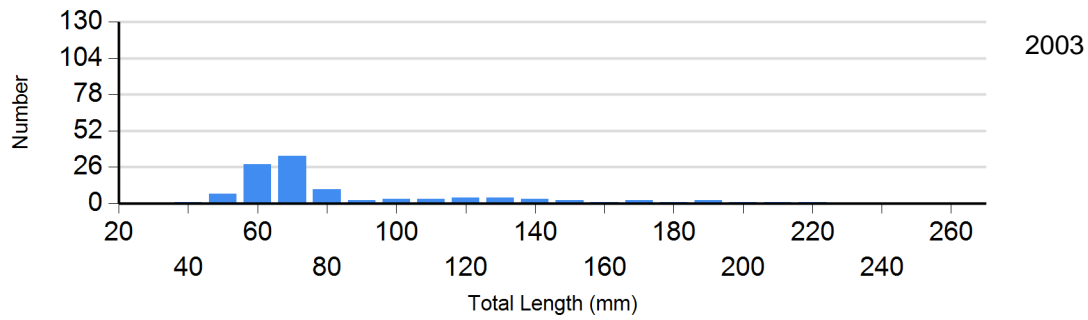


Site: 977
Species: Rainbow Trout

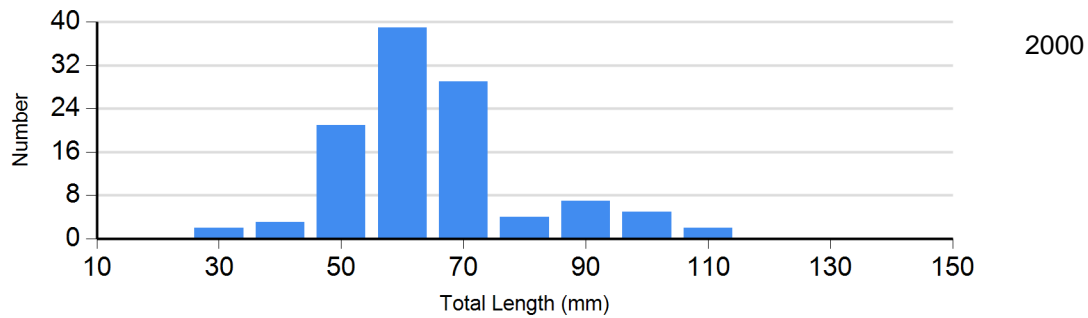
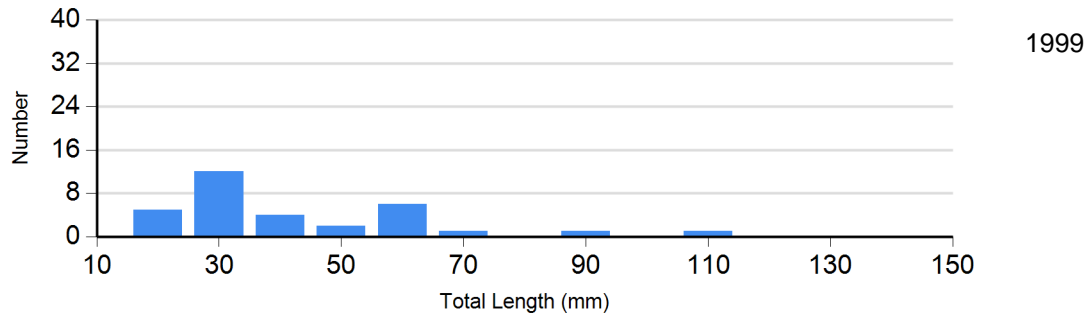


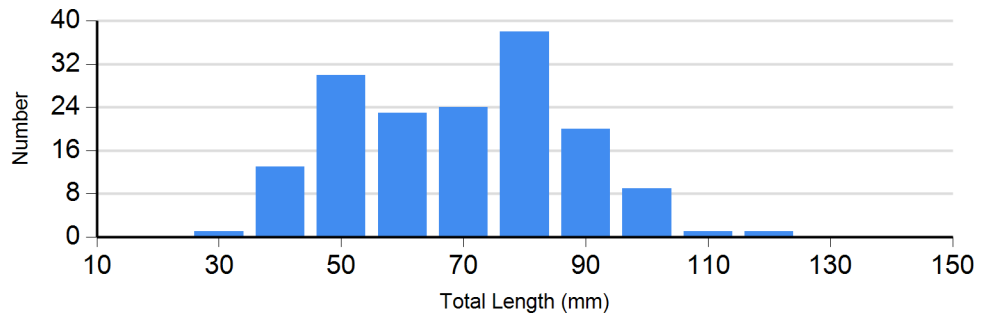
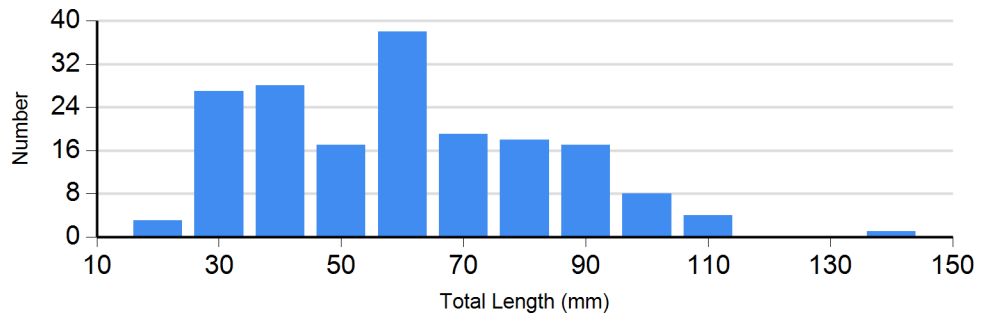
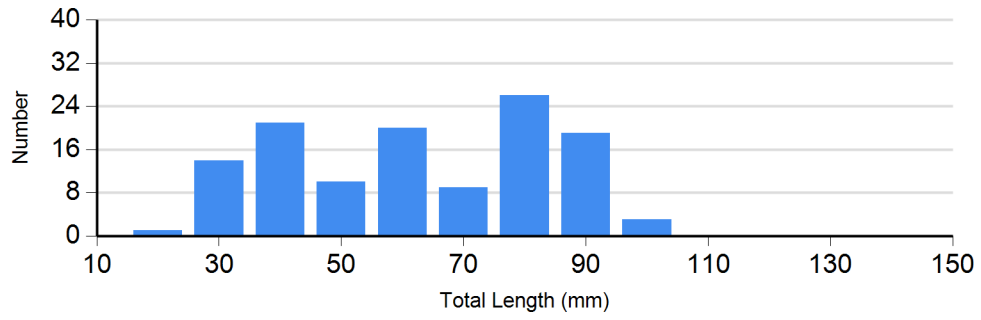
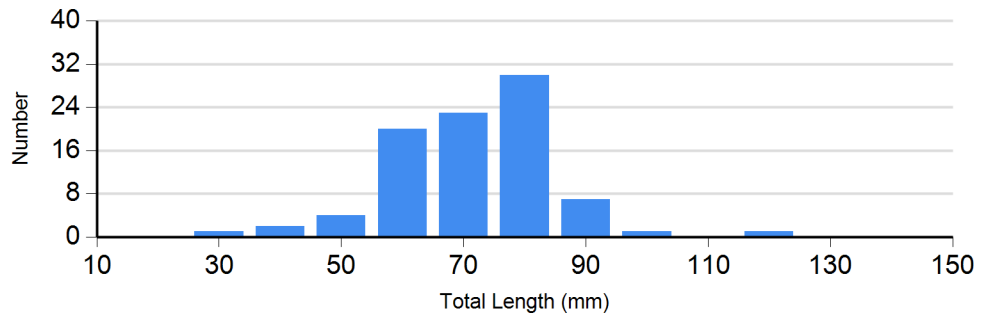
Site: 985
Species: Brook Trout



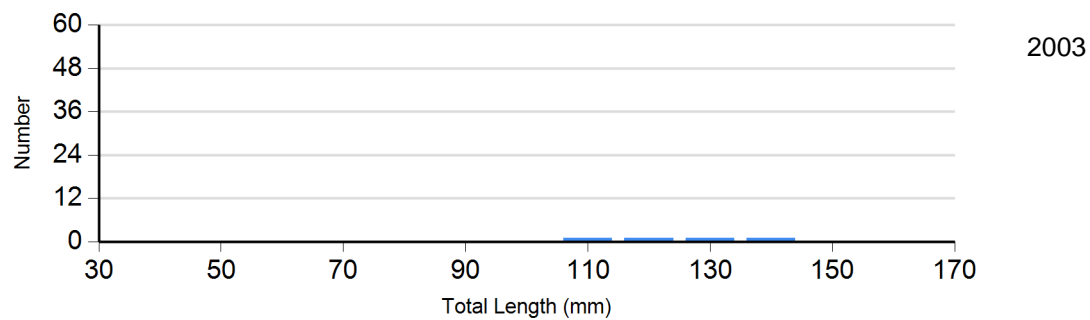
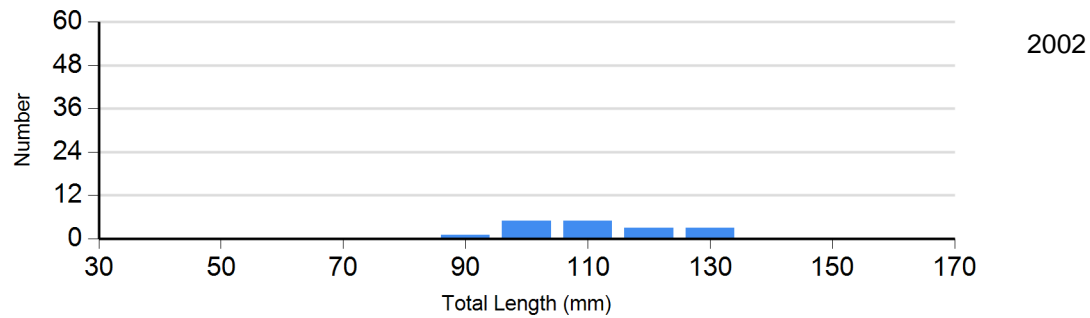
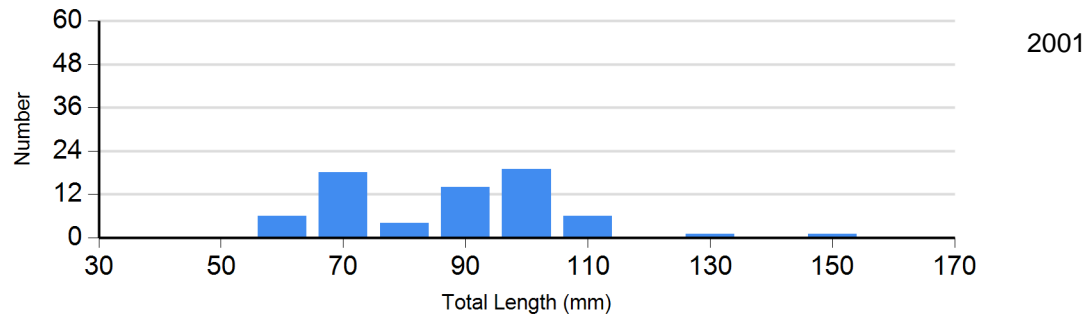
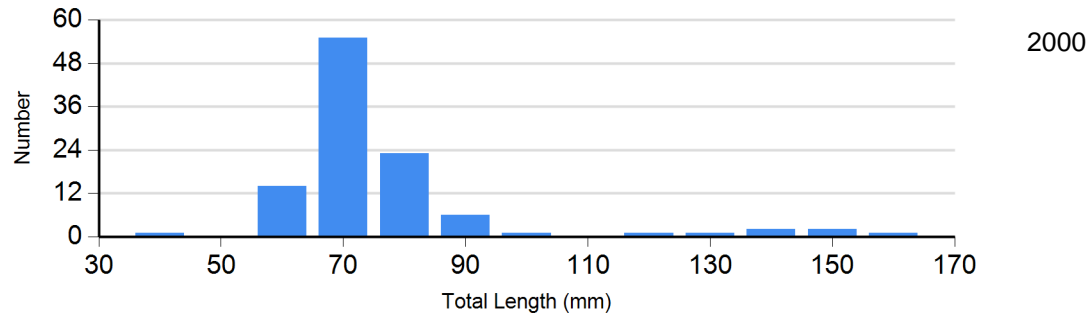


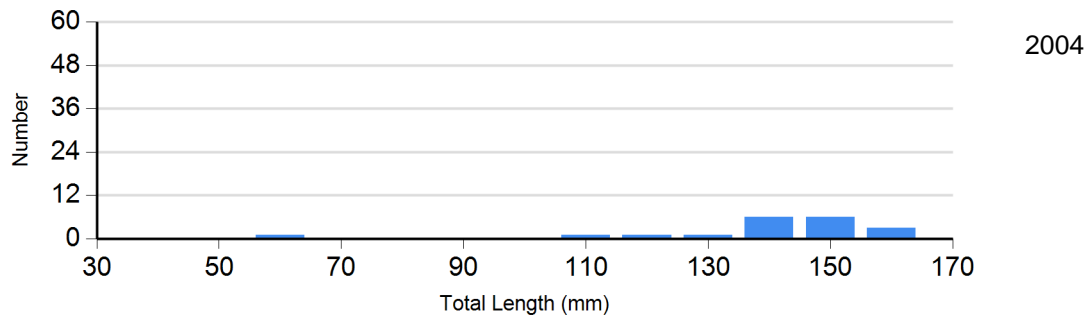
Site: 985
Species: Longnose Dace



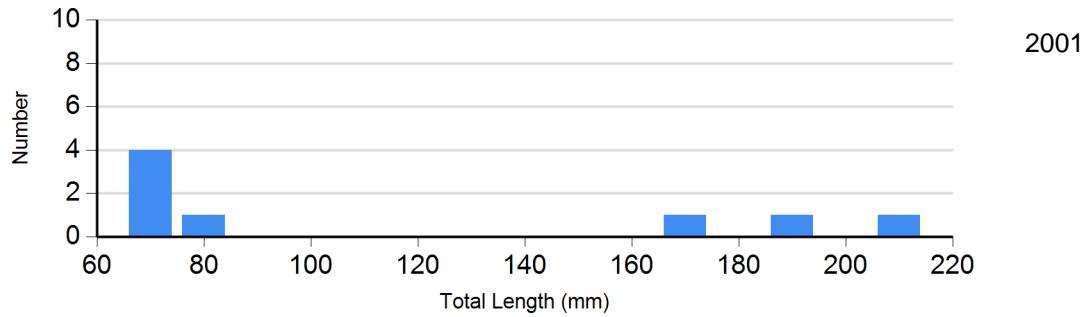


Site: 985
Species: Mountain Sucker

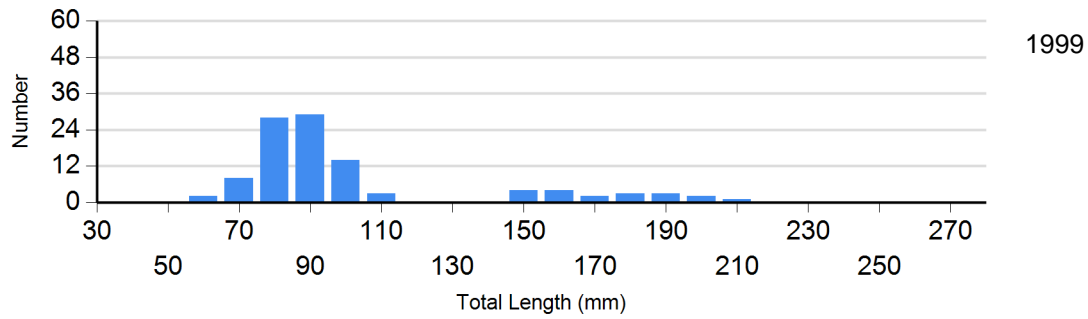


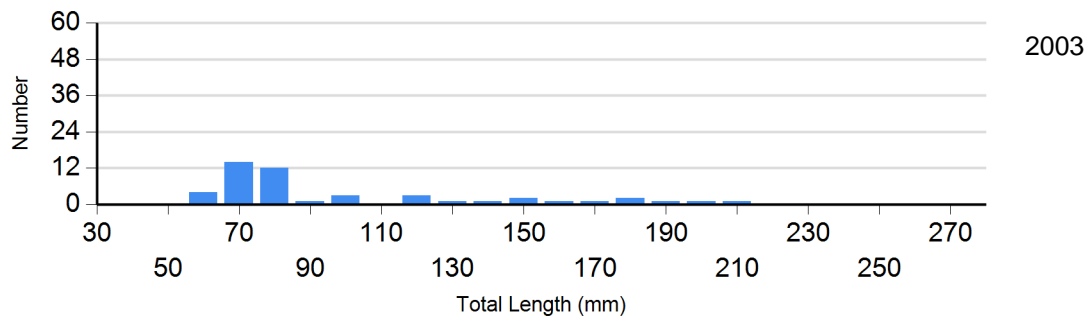
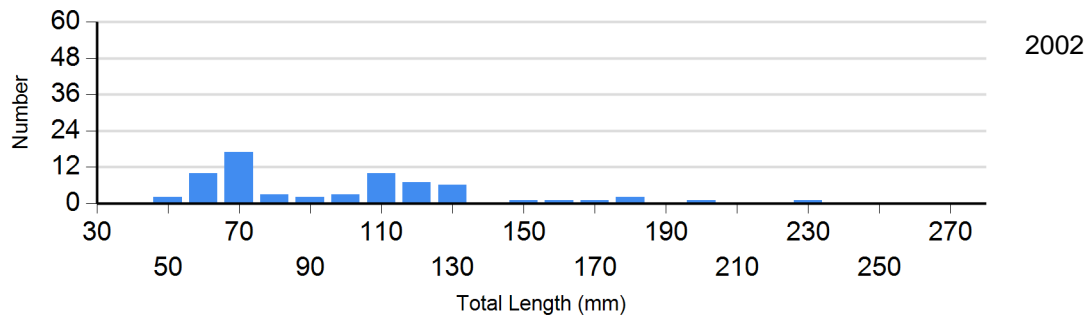
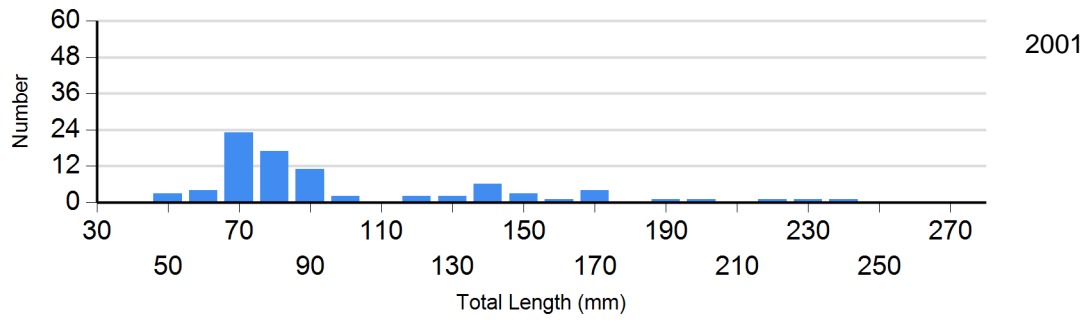
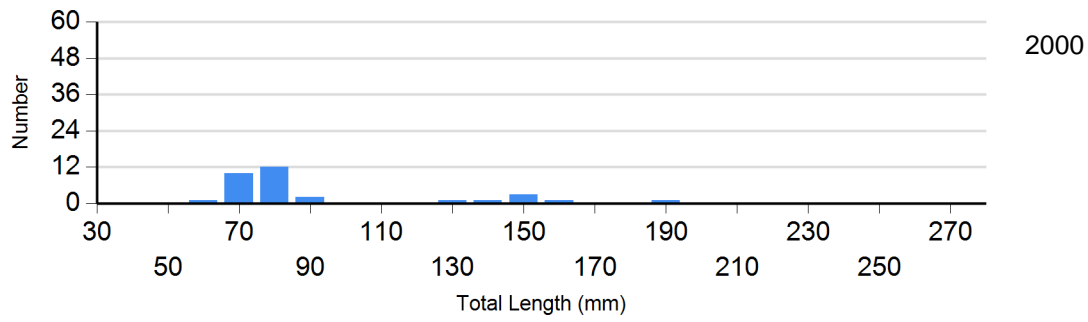


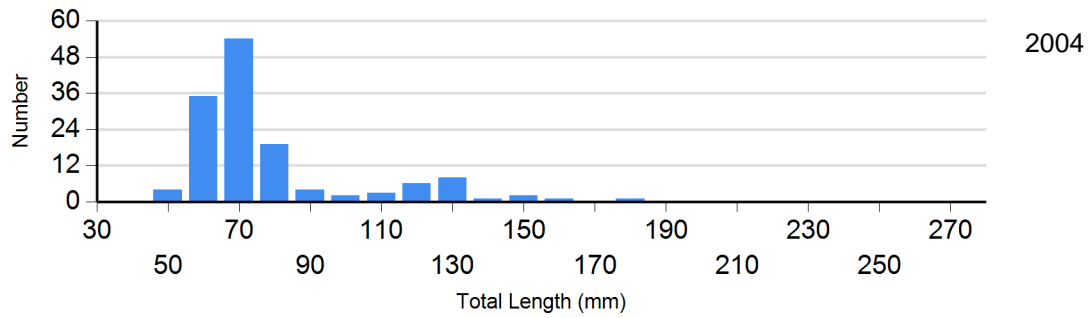
Site: 985
Species: Rainbow Trout



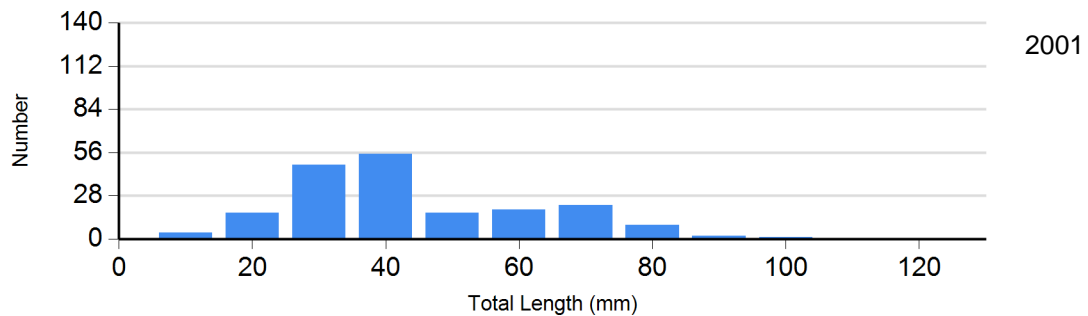
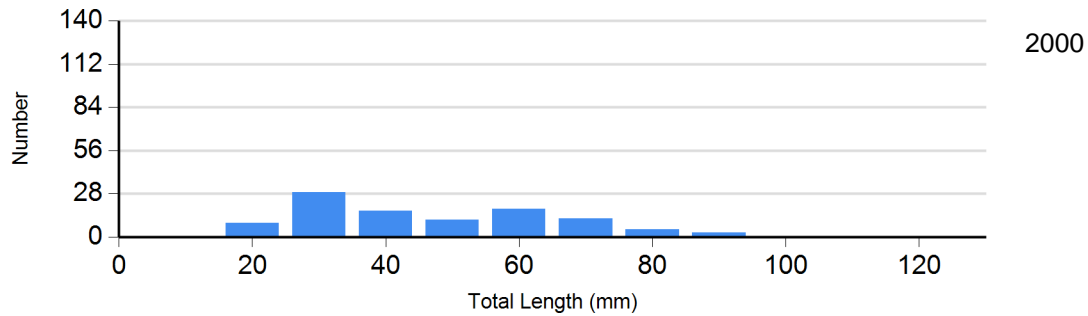
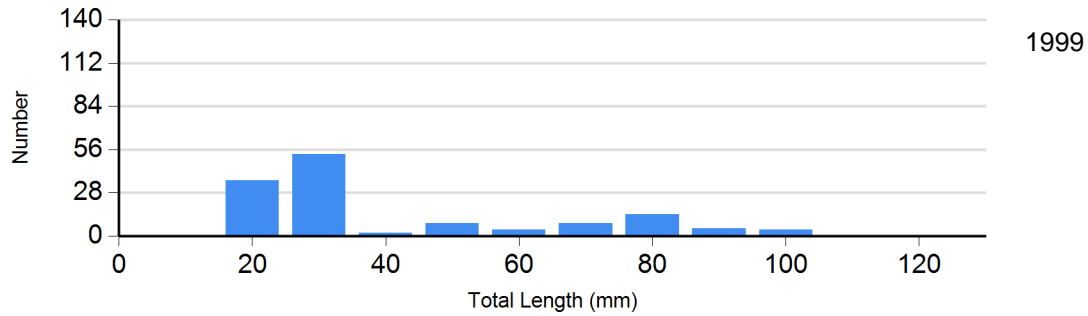
Site: 988
Species: Brook Trout

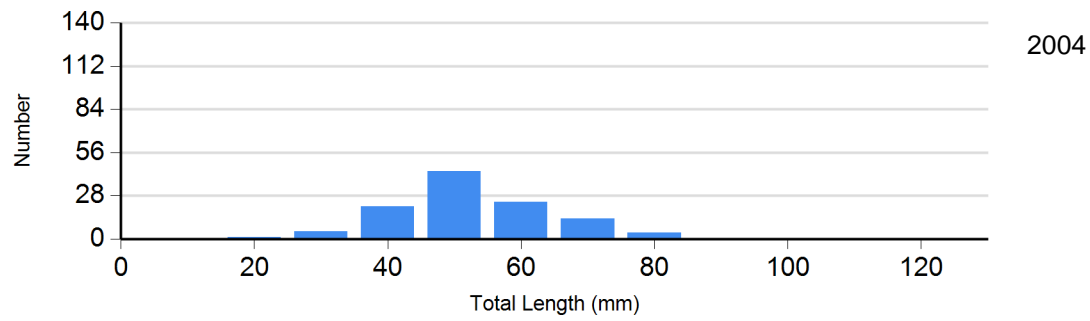
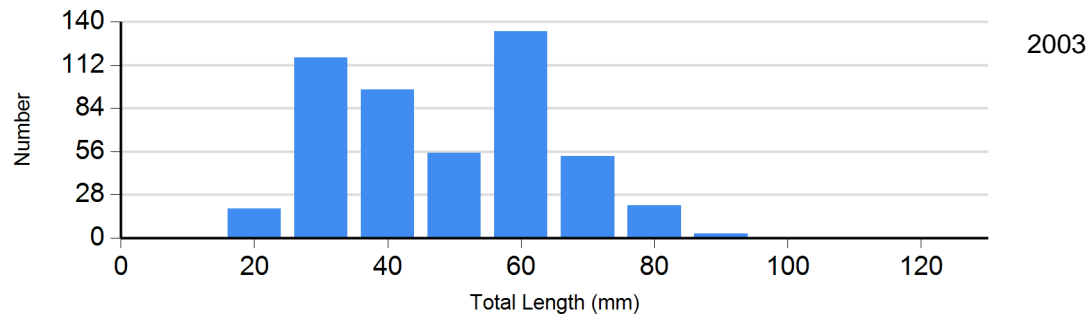
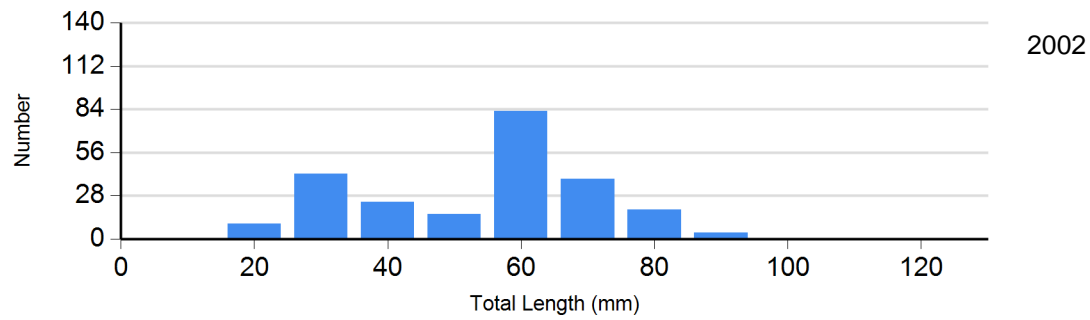






Site: 988
Species: Longnose Dace





Site: 988
Species: Mountain Sucker

