

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Bear Butte Creek, Meade County
49-0023-00
1997

Table 1. Population and Biomass Estimates for Bear Butte Creek

Site Number: 955
Site Midpoint (Latitude, Longitude): 44.33484568, -103.62910289
Survey Completed by: OEA Research Inc.
Stream Classification: BK2, RB2

Date Sampled: 09/10/1997
Site Length (m): 100
Mean Width (m): 4.3
Number of Pass: 3
Conductivity (umhos/cm):
pH:
Water Temperature (C): 11.0
Voltage:

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brook Trout	<200mm	6	6	7	6	140	8	60	57	7.12	97	163.8	57.2
Brook Trout	>=200mm	14	14	16	14	326	47	140	132	42.40	225	229.7	145.9
Brook Trout	All	20	20	22	20	465	55	200	188	49.52	322	210.0	119.3
Longnose Dace	All	21	21	22	21	488	2	210	198	1.74	338	36.1	4.0
Mountain Sucker	All	8	8	8	8	186	1	80	75	1.16	129	42.0	7.0
Rainbow Trout	>=200mm	1	1	1	1	23	9	10	9	8.22	16	342.0	396.0
Rainbow Trout	All	1	1	1	1	23	9	10	9	8.22	16	342.0	396.0
White Sucker	All	7	7	7	7	163	1	70	66	0.99	113	63.6	6.8

Site Number: 976
Site Midpoint (Latitude, Longitude): 44.32812906, -103.64456485
Survey Completed by: OEA Research Inc.
Stream Classification: BK3

Date Sampled: 09/09/1997
Site Length (m): 100
Mean Width (m): 5.0
Number of Pass: 3
Conductivity (umhos/cm):
pH:
Water Temperature (C): 11.0
Voltage:

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brook Trout	<200mm	1	1	1	1	20	0	10	8	0.14	16	86.0	8.0
Brook Trout	>=200mm	2	2	3	2	40	5	20	16	4.29	32	216.0	120.0
Brook Trout	All	3	3	4	3	60	5	30	24	4.43	48	172.7	82.7
Longnose Dace	All	106	106	107	106	2120	8	1060	859	7.57	1706	33.0	4.0
Mountain Sucker	All	67	71	78	67	1420	15	710	575	13.45	1142	60.8	10.6
White Sucker	All	11	11	13	11	220	9	110	89	8.41	177	148.3	42.8

Site Number: 977

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK2

Date Sampled: 09/09/1997

Site Length (m): 100

Mean Width (m): 3.7

Number of Pass: 4

Conductivity (umhos/cm):

pH:

Water Temperature (C): 14.0

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	1	1	2	1	27	0	10	11	0.17	16	87.0	7.0
Brook Trout	>=200mm	5	5	5	5	134	20	50	54	18.05	80	229.0	150.4
Brook Trout	All	6	6	6	6	161	20	60	65	18.22	97	205.3	126.5
Longnose Dace	All	10	10	11	10	269	0	100	109	0.29	161	42.3	1.2
Mountain Sucker	All	21	28	45	21	753	5	280	305	4.58	451	82.4	6.8
White Sucker	All	2	2	4	2	54	1	20	22	0.53	32	94.0	11.0

Site Number: 985

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK3

Date Sampled: 09/08/1997

Site Length (m): 100

Mean Width (m): 3.6

Conductivity (umhos/cm):

pH:

Water Temperature (C): 14.0

Number of Pass: 4

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	1	1	1	1	28	3	10	11	2.89	16	223.0	117.0
Brook Trout	All	1	1	1	1	28	3	10	11	2.89	16	223.0	117.0
Longnose Dace	All	32	33	36	32	912	5	330	369	4.04	531	69.6	5.0
Mountain Sucker	All	86	87	90	86	2403	19	870	973	16.79	1400	79.4	7.8
White Sucker	All	20	20	21	20	552	6	200	224	5.30	322	92.9	10.8

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: 11/04/1997

Site Length (m): 100

Mean Width (m): 3.1

Number of Pass: 3

Conductivity (umhos/cm): 640

pH: 8.4

Water Temperature (C): 0.0

Voltage: 350

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brook Trout	<200mm	5	5	5	5	162	9	50	66	8.18	80	180.6	56.4
Brook Trout	>=200mm	2	2	6	2	65	6	20	26	5.07	32	213.5	87.5
Brook Trout	All	7	7	8	7	227	15	70	92	13.25	113	190.0	65.3
Longnose Dace	All	11	10	13	11	325	1	100	131	1.28	161	70.7	4.4
Mountain Sucker	All	143	257	386	143	8344	48	2570	3379	42.96	4135	80.0	5.8
White Sucker	All	3	5	24	3	162	1	50	66	1.26	80	97.7	8.7

Site Number: 986

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

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK0

Date Sampled: 07/14/1997

Site Length (m): 100

Mean Width (m): 4.9

Number of Pass: 3

Conductivity (umhos/cm): 838

pH: 8.1

Water Temperature (C): 21.0

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	5	6	13	5	121	6	60	49	5.78	97	118.6	53.3
Brook Trout	All	5	6	13	5	121	6	60	49	5.78	97	118.6	53.3
Longnose Dace	All	429	576	654	498	11660	44	5760	4722	39.29	9268	71.1	3.8
Mountain Sucker	All	49	67	96	49	1356	29	670	549	25.65	1078	114.2	21.2

Site Number: 988
 Site Midpoint (Latitude, Longitude): 44.32359378, -103.65026058
 Survey Completed by: South Dakota Game, Fish and Parks
 Stream Classification: BK3

Date Sampled: 07/14/1997
 Site Length (m): 100
 Mean Width (m): 5.1
 Number of Pass: 3
 Conductivity (umhos/cm): 227
 pH: 8.0
 Water Temperature (C): 22.0
 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	18	18	20	18	356	7	180	144	6.53	290	102.6	20.6
Brook Trout	>=200mm	1	1	1	1	20	2	10	8	1.54	16	204.0	87.0
Brook Trout	All	19	19	21	19	375	9	190	152	8.20	306	107.9	24.5
Longnose Dace	All	507	695	787	603	13735	40	6950	5563	35.97	11183	67.5	2.9
Mountain Sucker	All	16	15	21	16	296	4	150	120	3.35	241	83.3	12.7
White Sucker	All	12	13	18	12	257	6	130	104	5.41	209	115.3	23.6

Site Number: 988
 Site Midpoint (Latitude, Longitude): 44.32359378, -103.65026058
 Survey Completed by: OEA Research Inc.
 Stream Classification: BK0

Date Sampled: 09/09/1997
 Site Length (m): 100
 Mean Width (m): 3.8
 Number of Pass: 3
 Conductivity (umhos/cm):
 pH:
 Water Temperature (C): 15.0
 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	19	19	19	19	505	16	190	205	14.08	306	123.8	31.2
Brook Trout	All	19	19	19	19	505	16	190	205	14.08	306	123.8	31.2
Longnose Dace	All	394	483	531	435	12846	54	4830	5203	48.31	7771	63.8	4.2
Mountain Sucker	All	124	146	167	125	3883	37	1460	1573	33.36	2349	86.1	9.6
White Sucker	All	13	13	13	13	346	7	130	140	5.87	209	115.1	19.0

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: 11/04/1997

Site Length (m): 96

Mean Width (m): 3.3

Number of Pass: 3

Conductivity (umhos/cm): 148

pH: 8.3

Water Temperature (C): 4.0

Voltage: 350

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brook Trout	<200mm	9	9	9	9	271	7	94	110	6.43	151	138.7	26.6
Brook Trout	>=200mm	6	6	6	6	181	24	63	73	21.43	101	231.5	132.8
Brook Trout	All	15	15	15	15	452	31	156	183	27.86	251	175.8	69.1
Longnose Dace	All	234	360	458	262	10843	46	3750	4392	41.49	6034	77.7	4.3
Mountain Sucker	All	12	12	14	12	361	3	125	146	2.38	201	85.2	7.4
White Sucker	All	72	81	93	72	2440	91	844	988	81.25	1358	136.0	37.3

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, 1987-1997

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	
Brook Trout >=200mm	Sep 09, 1992	2	2-2	BK3
	Sep 10, 1997	14	14-16	BK2
Longnose Dace	Sep 09, 1992	521	449-593	

Longnose Dace	Sep 10, 1997	21	21-22	
Mountain Sucker	Sep 09, 1992	82	77-90	
	Sep 10, 1997	8	8-8	
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	

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	
Brook Trout >=200mm	Sep 20, 1994	1	1-1	BK3
	Sep 09, 1997	2	2-3	BK3

Longnose Dace	Apr 16, 1993	323	71-1282	
	Jun 10, 1993	79	59-107	
	Sep 18, 1995	74	68-83	
	Sep 09, 1997	106	106-107	
Mountain Sucker	Apr 16, 1993	2	2-4	
	Sep 09, 1997	71	67-78	
Rainbow Trout <200mm	Apr 16, 1993	1	1-3	
	Jun 10, 1993	1	1-1	
Rainbow Trout >=200mm	Jun 10, 1993	2	2-2	RB2
White Sucker	Apr 16, 1993	2	2-5	
	Sep 23, 1996	47	44-53	
	Sep 09, 1997	11	11-13	

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	

Brook Trout <200mm	Sep 23, 1996	47	47-49	
	Sep 09, 1997	1	1-2	
Brook Trout >=200mm	Sep 09, 1997	5	5-5	BK2
Longnose Dace	Apr 16, 1993	128	66-239	
	Jun 10, 1993	68	44-111	
	Sep 09, 1997	10	10-11	
Mountain Sucker	Apr 16, 1993	16	13-26	
	Sep 09, 1997	28	21-45	
Rainbow Trout <200mm	Jun 10, 1993	1	1-1	
Rainbow Trout >=200mm	Jun 10, 1993	2	2-2	RB2
	Sep 20, 1994	1	1-1	RB2
	Sep 23, 1996	2	2-2	RB2
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	

White Sucker

Sep 09, 1997

2

2-4

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 08, 1997	1	1-1	BK3
	Nov 04, 1997	2	2-6	BK2
Longnose Dace	Sep 08, 1997	33	32-36	
	Nov 04, 1997	10	11-13	
Mountain Sucker	Sep 08, 1997	87	86-90	
	Nov 04, 1997	257	143-386	
White Sucker	Sep 08, 1997	20	20-21	
	Nov 04, 1997	5	3-24	

Site 986

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Stickleback	Sep 21, 1996	1	1-2	
Brook Trout <200mm	Sep 10, 1992	6	6-6	
	May 10, 1993	9	9-10	

Brook Trout <200mm	Sep 21, 1996	53	53-54	
	Nov 12, 1996	45	45-47	
	Jul 14, 1997	6	5-13	
Brook Trout >=200mm	May 10, 1993	1	1-2	BK3
	Jun 06, 1995	1	1-1	BK3
	Sep 21, 1996	1	1-1	BK3
	Nov 12, 1996	1	1-1	BK3
Longnose Dace	Sep 10, 1992	537	256-818	
	May 10, 1993	3	3-5	
	Jun 06, 1995	1	1-1	
	Sep 18, 1995	59	48-77	
	Sep 21, 1996	120	110-131	
	Nov 12, 1996	124	53-293	
	Jul 14, 1997	576	498-654	
Mountain Sucker	Sep 10, 1992	33	19-77	
	Nov 12, 1996	27	12-102	

Mountain Sucker	Jul 14, 1997	67	49-96	
Rainbow Trout >=200mm	May 10, 1993	2	2-2	RB2
White Sucker	Sep 10, 1992	1	1-5	
	May 10, 1993	6	6-7	
	Sep 18, 1995	1	1-2	
	Sep 21, 1996	46	46-48	
	Nov 12, 1996	7	7-9	

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	Sep 10, 1992	14	12-21	
	May 10, 1993	15	15-16	
	Sep 20, 1994	8	8-10	
	Sep 18, 1995	2	2-3	
	Sep 21, 1996	20	20-21	

Brook Trout <200mm	Jul 14, 1997	18	18-20	
	Sep 09, 1997	19	19-19	
	Nov 04, 1997	9	9-9	
Brook Trout >=200mm	May 10, 1993	1	1-4	BK3
	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
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	

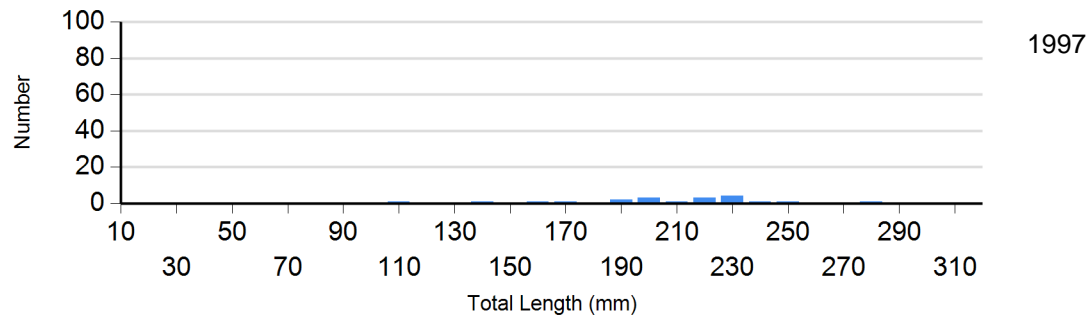
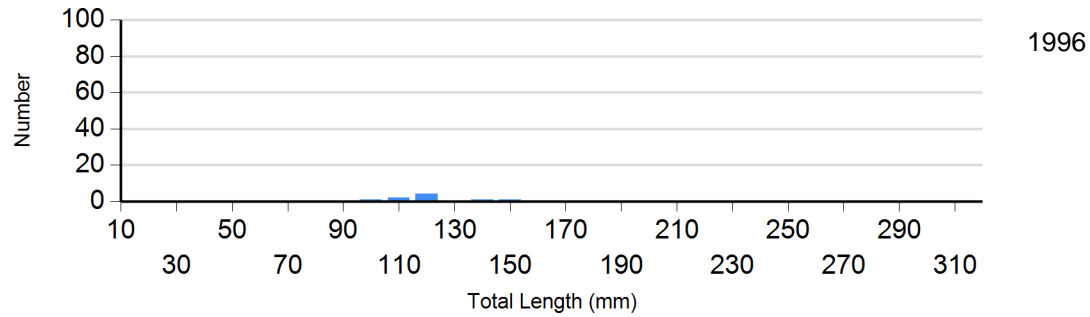
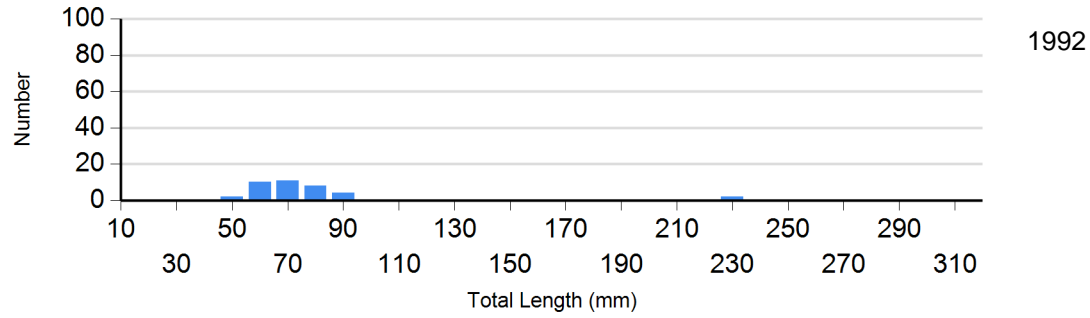
Mountain Sucker	Jun 06, 1995	14	6-73	
	Sep 18, 1995	3	3-3	
	Jul 14, 1997	15	16-21	
	Sep 09, 1997	146	125-167	
	Nov 04, 1997	12	12-14	
Rainbow Trout <200mm	Sep 10, 1992	2	2-2	
	May 10, 1993	1	1-1	
Rainbow Trout >=200mm	May 10, 1993	1	1-1	RB2
White Sucker	Sep 10, 1992	1	1-1	
	May 10, 1993	48	28-97	
	Sep 20, 1994	26	26-27	
	Jun 06, 1995	28	15-76	
	Sep 18, 1995	11	11-13	
	Sep 21, 1996	70	66-77	
	Jul 14, 1997	13	12-18	
	Sep 09, 1997	13	13-13	

Length Frequency Distribution

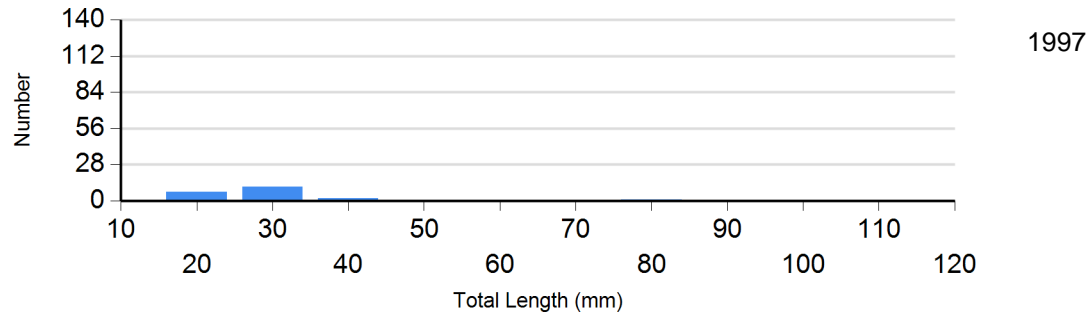
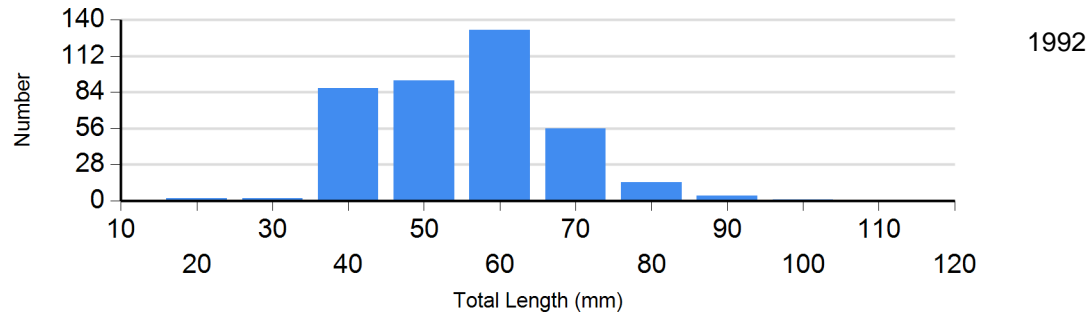
Length frequency histogram of species sampled by year.

Site: 955

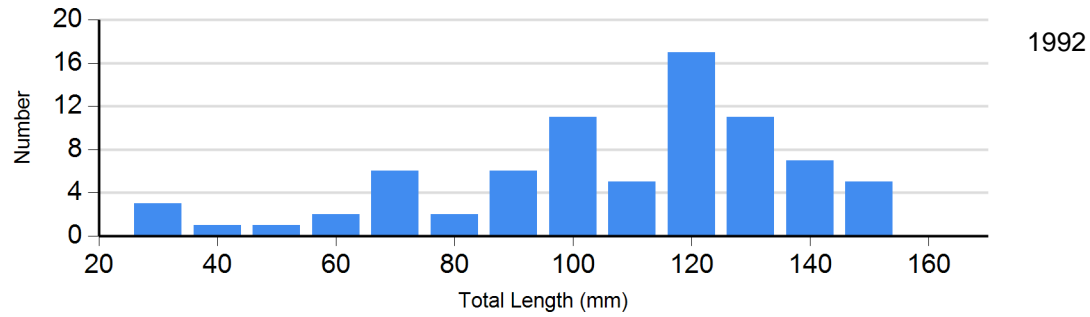
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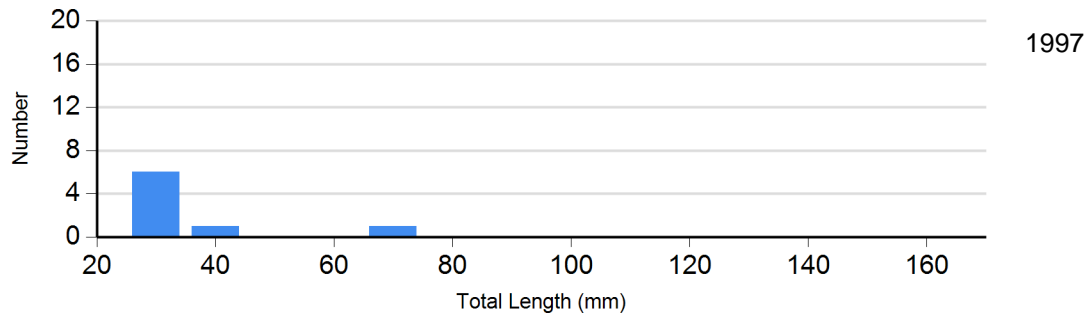


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Species: Longnose Dace

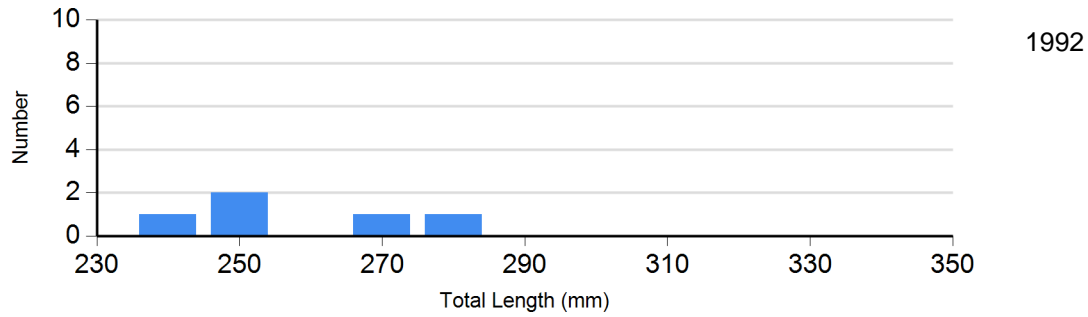


Site: 955
Species: Mountain Sucker

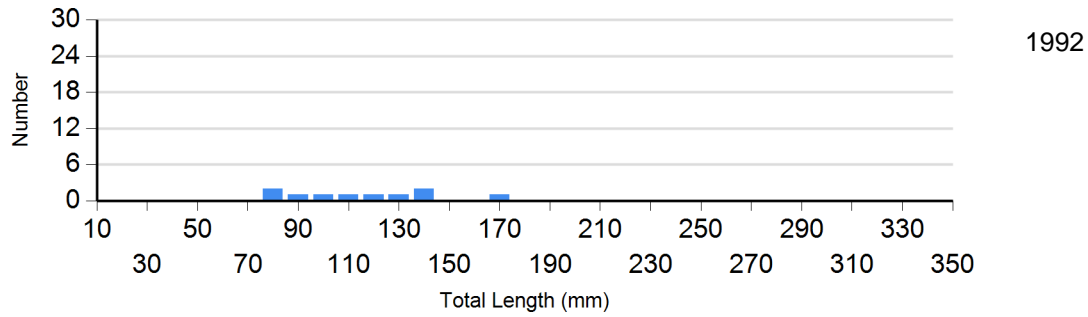


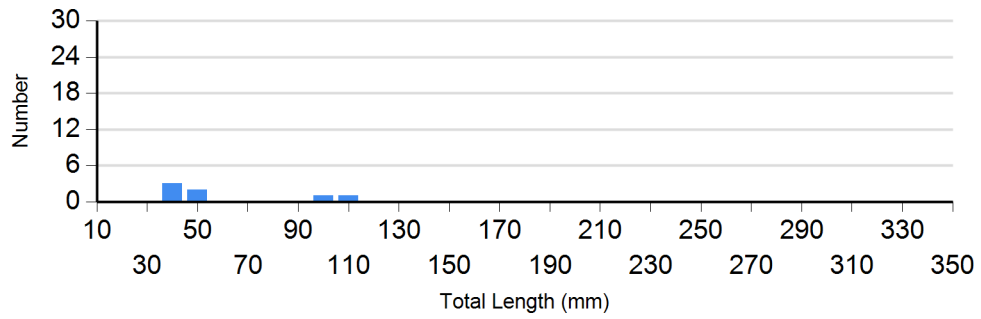
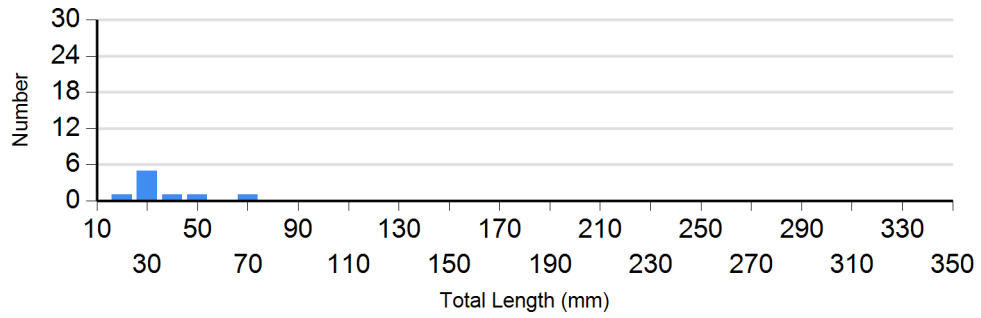
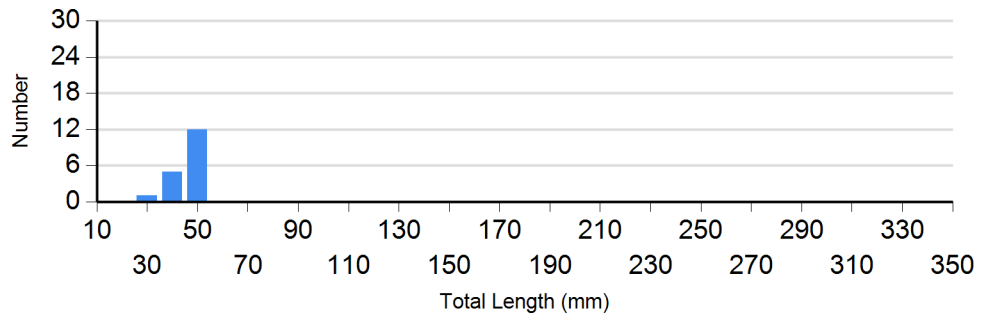


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Species: Rainbow Trout

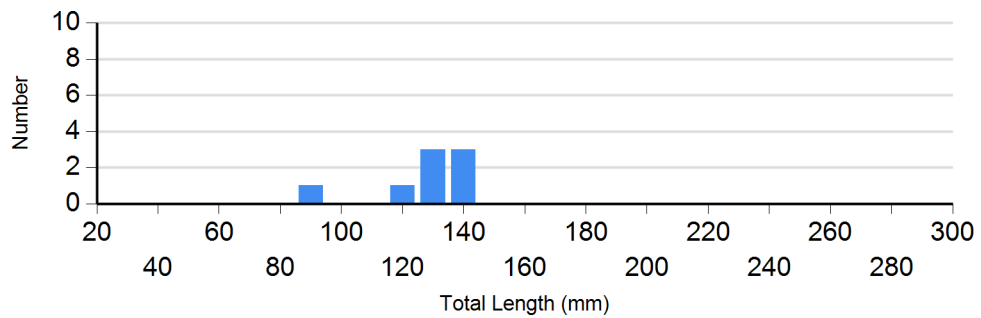


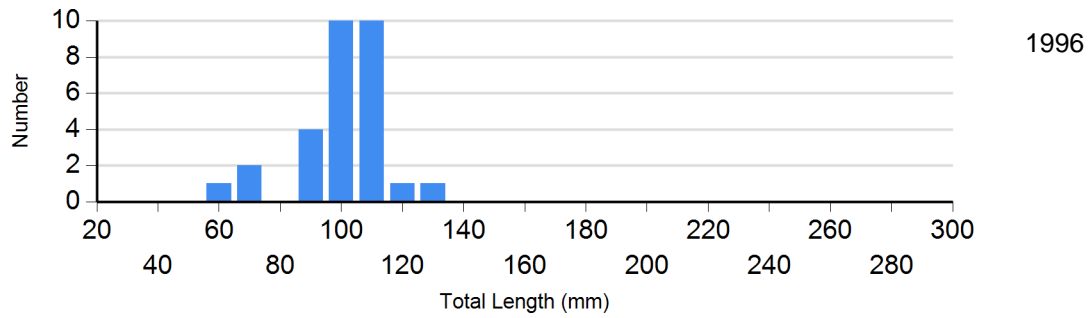
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Species: White Sucker



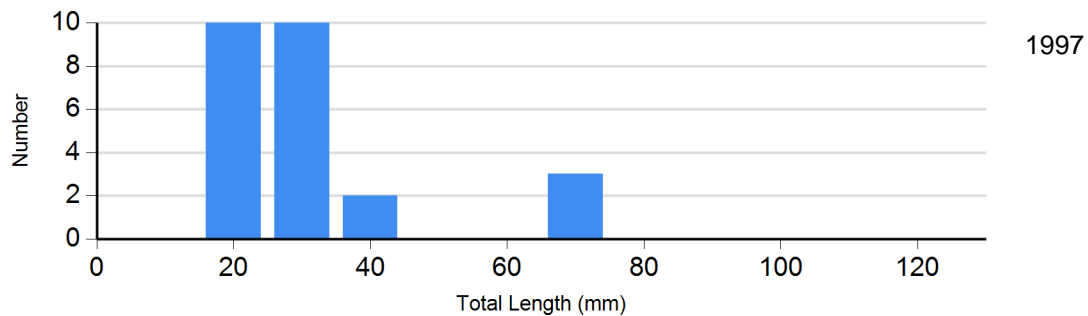
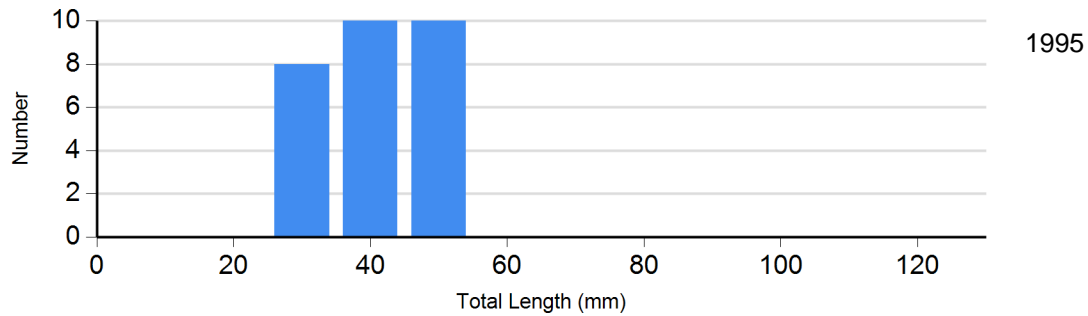
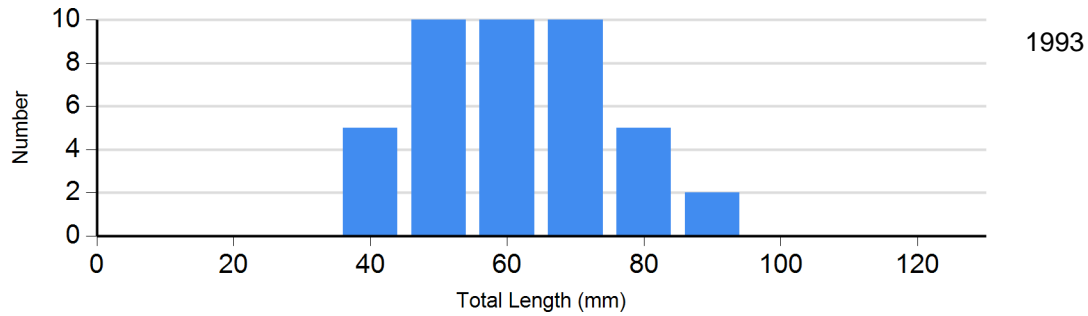


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Species: Brook Trout

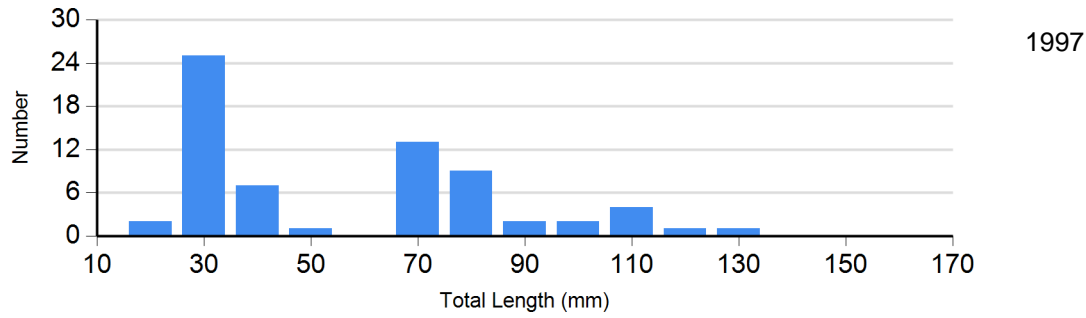




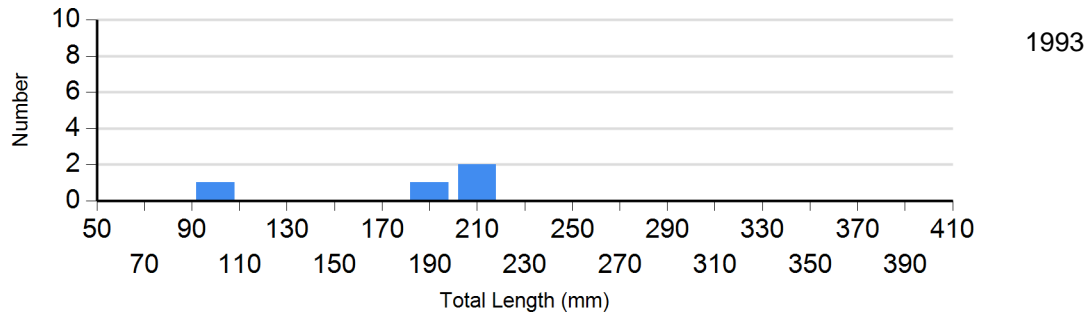
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Species: Longnose Dace



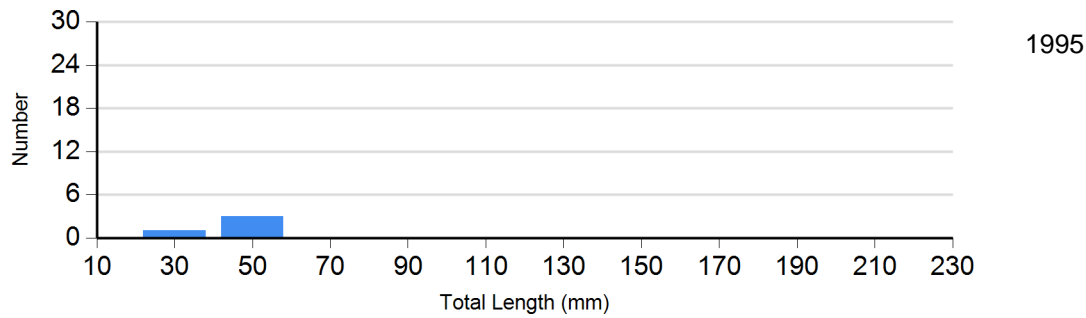
Site: 976
Species: Mountain Sucker

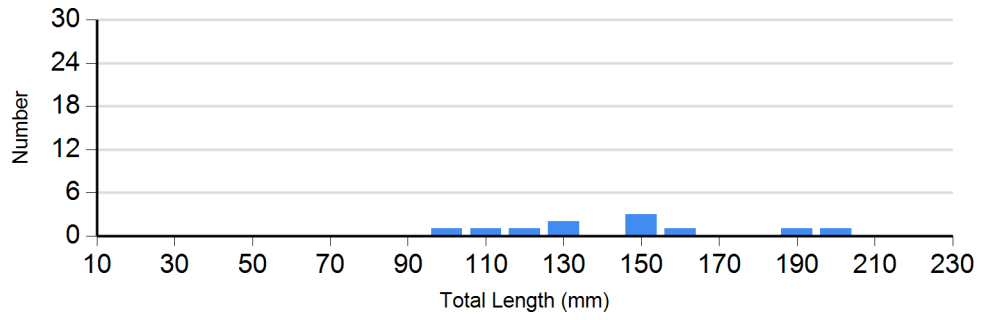
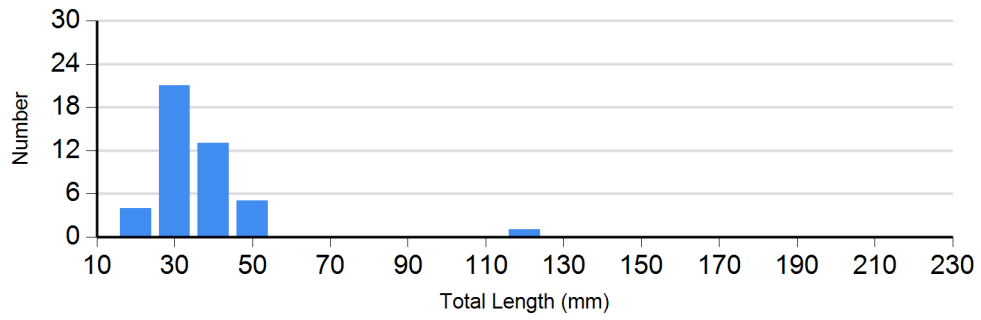


Site: 976
Species: Rainbow Trout

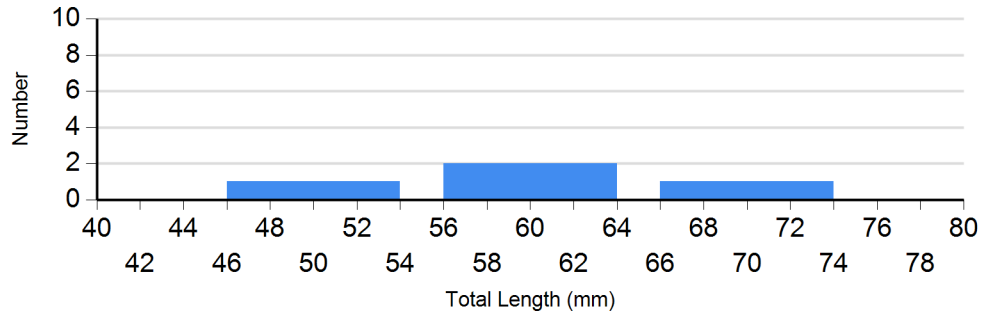


Site: 976
Species: White Sucker

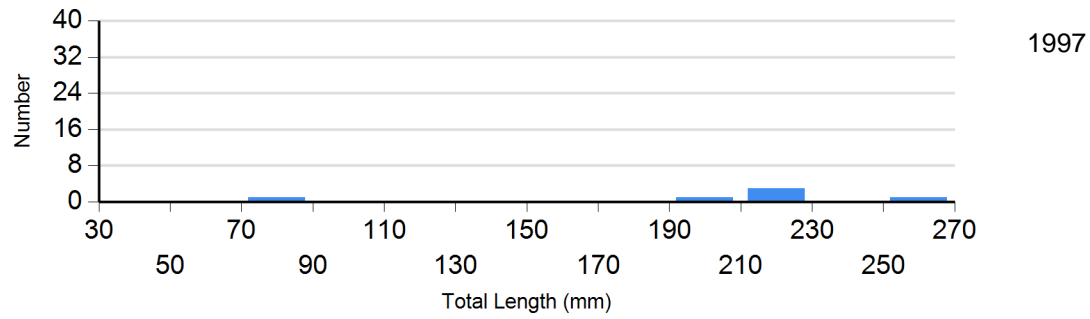
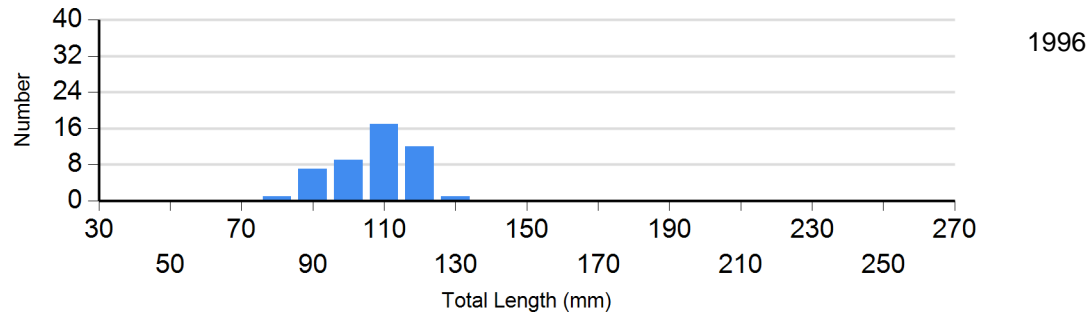
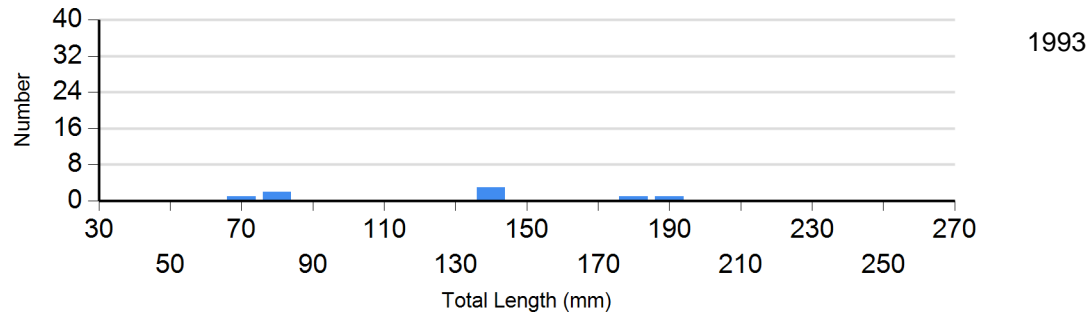




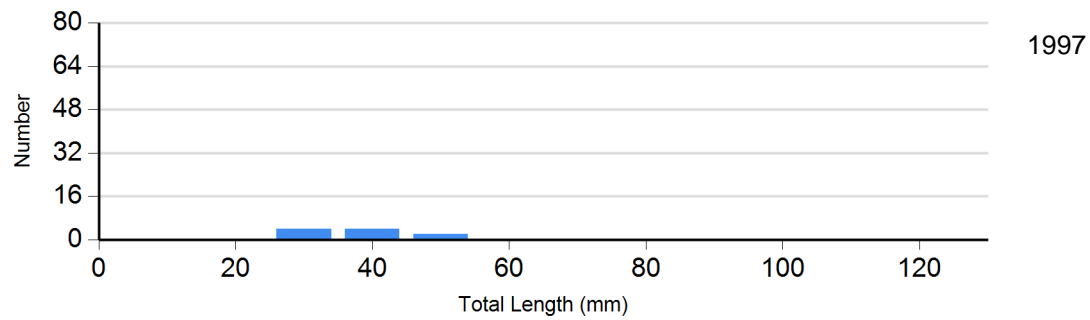
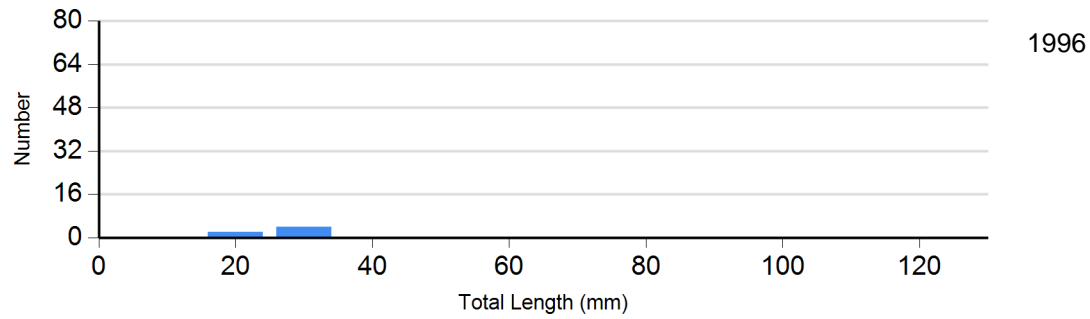
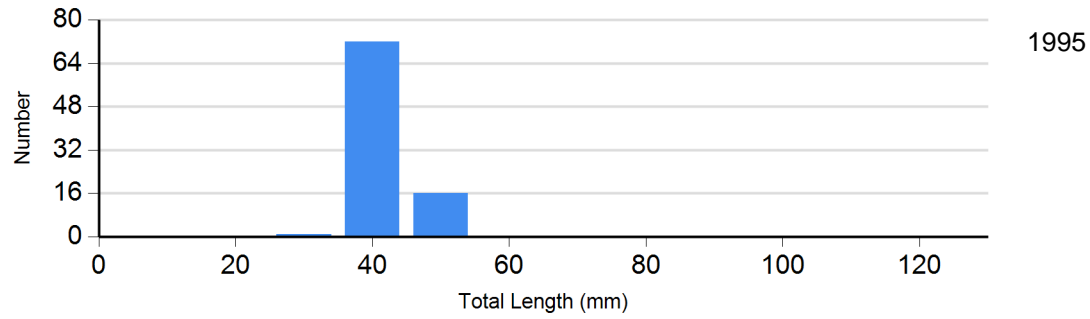
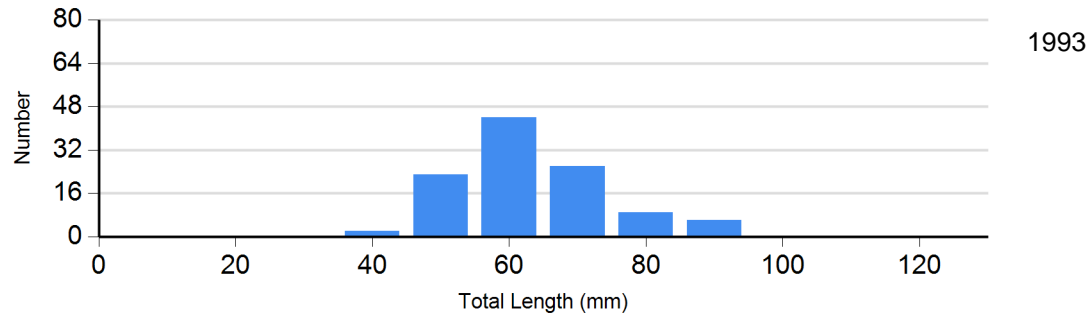
Site: 977
Species: Brook Stickleback



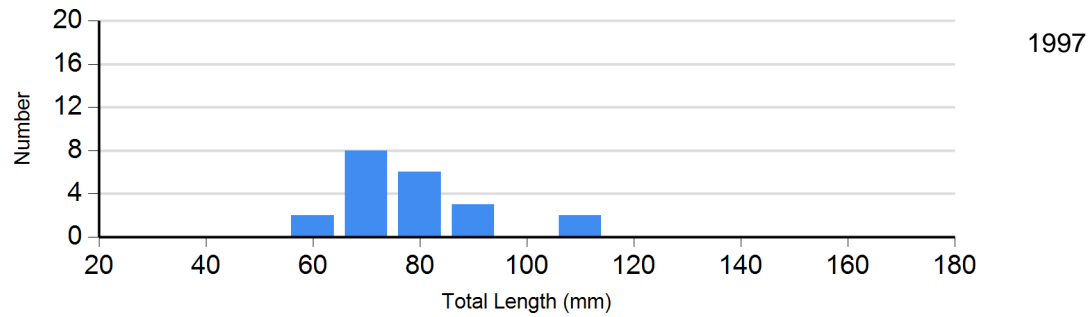
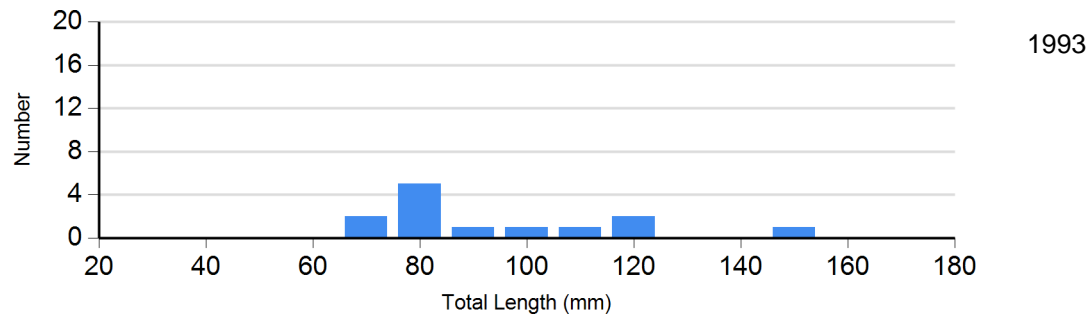
Site: 977
Species: Brook Trout



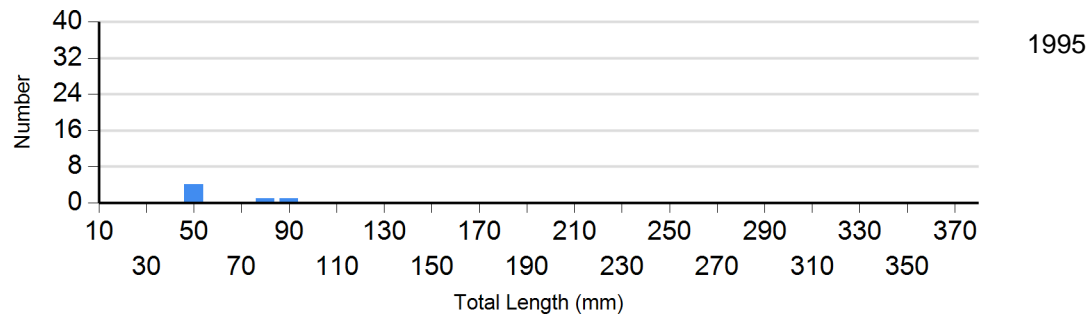
Site: 977
Species: Longnose Dace

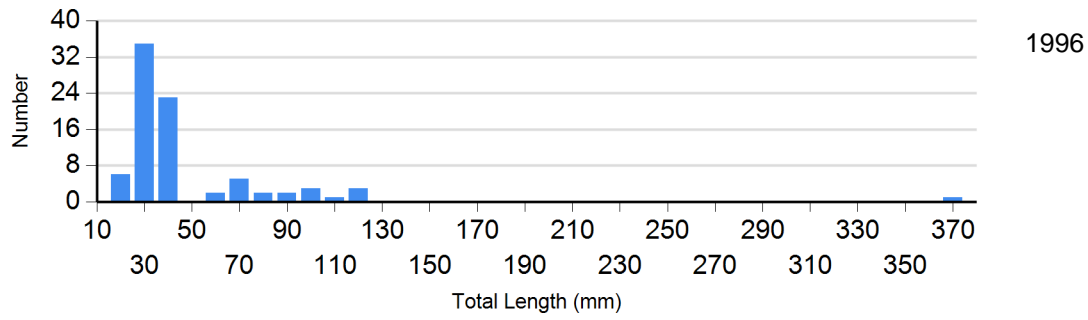


Site: 977
Species: Mountain Sucker

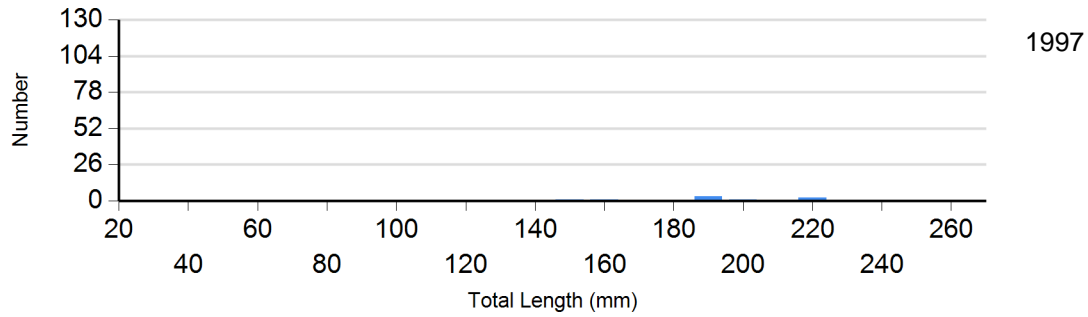


Site: 977
Species: White Sucker

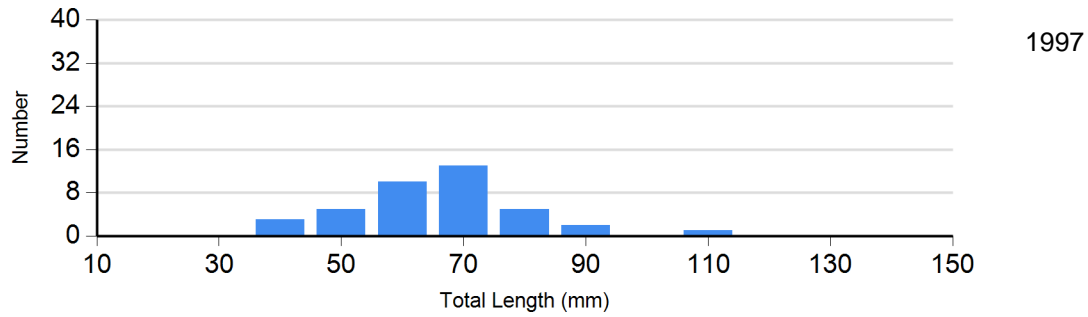




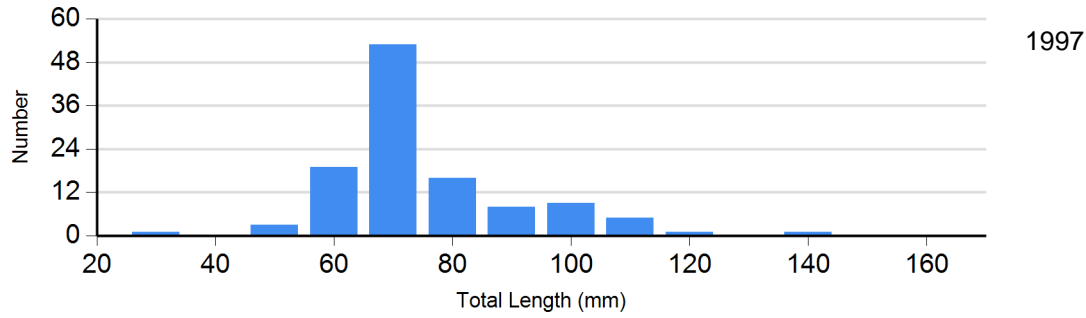
Site: 985
Species: Brook Trout



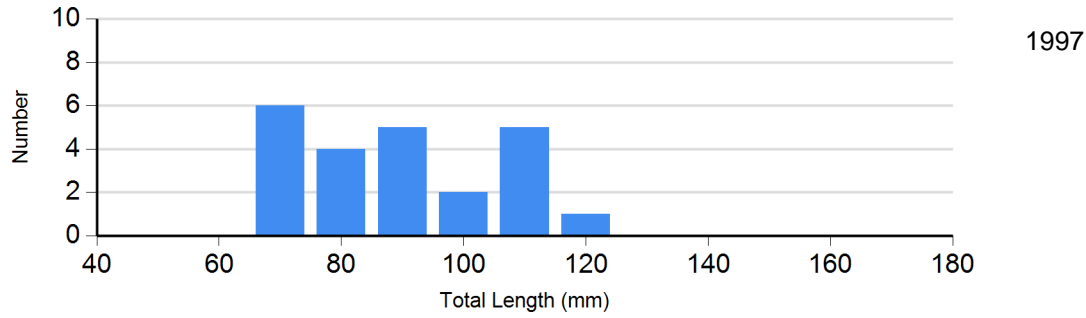
Site: 985
Species: Longnose Dace



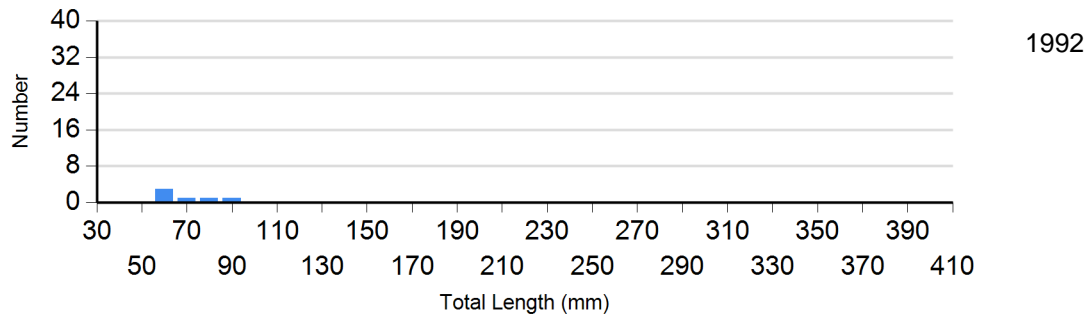
Site: 985
Species: Mountain Sucker

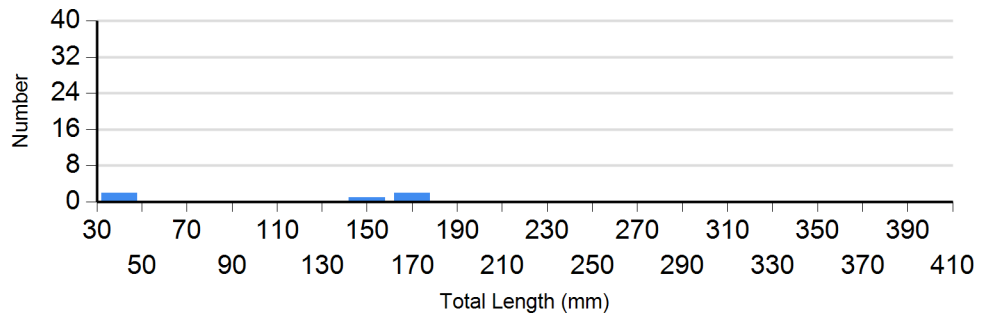
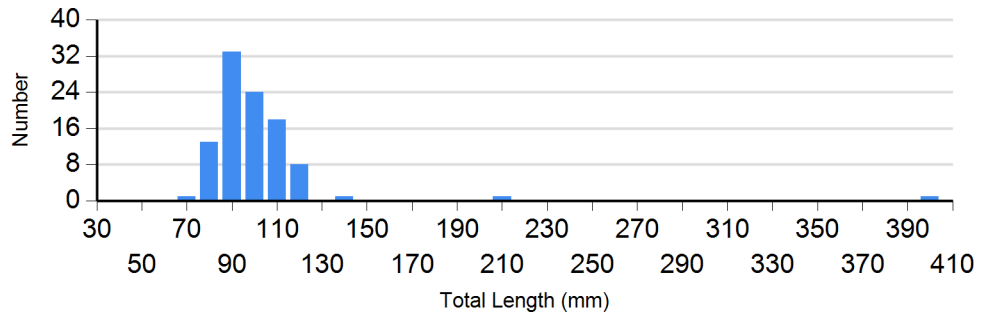
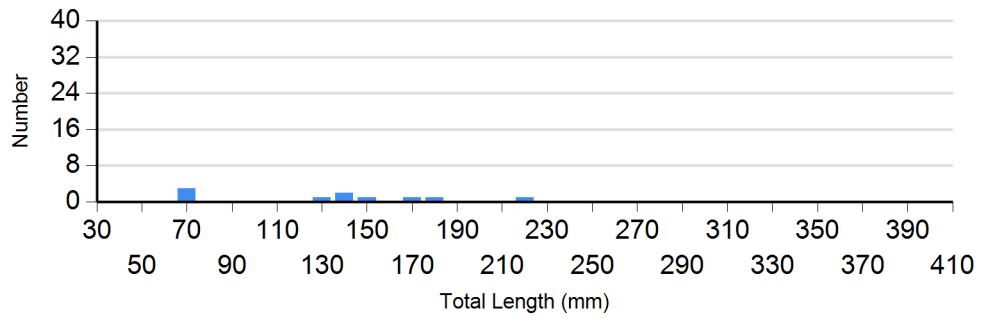


Site: 985
Species: White Sucker

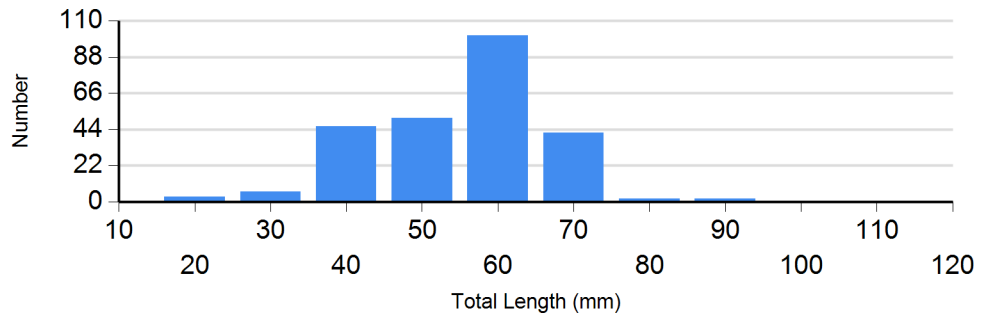


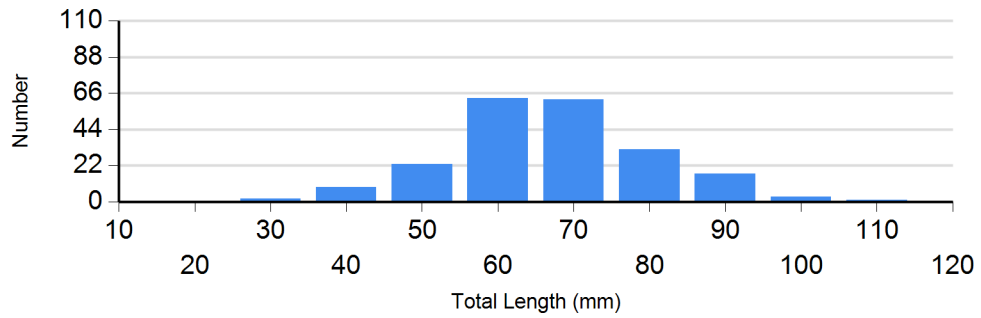
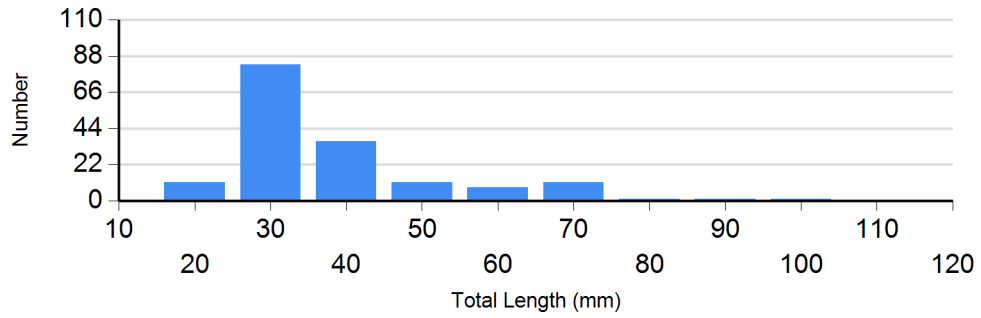
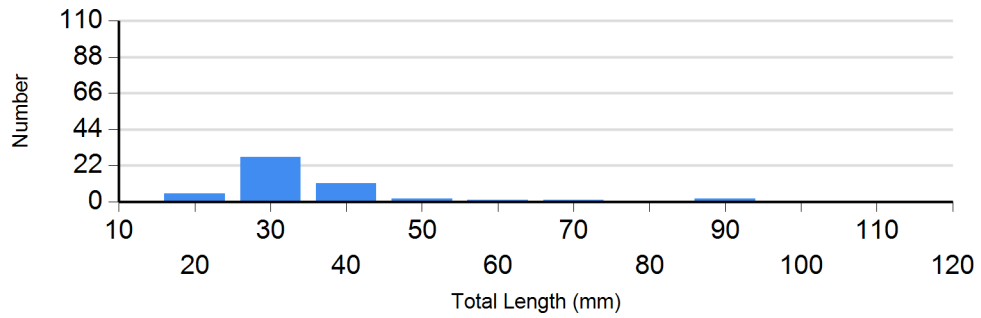
Site: 986
Species: Brook Trout



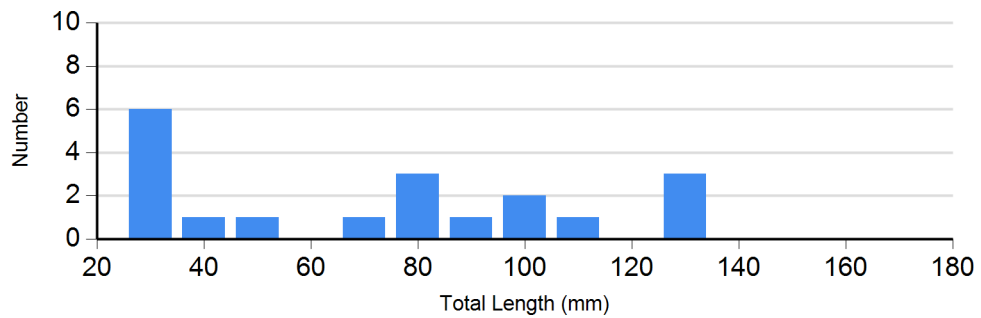


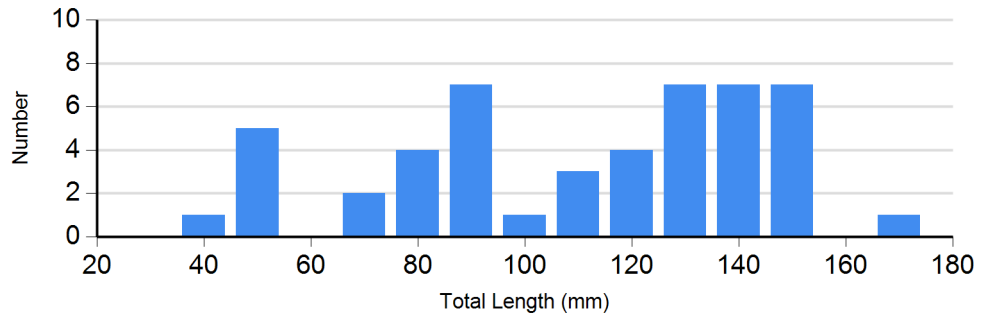
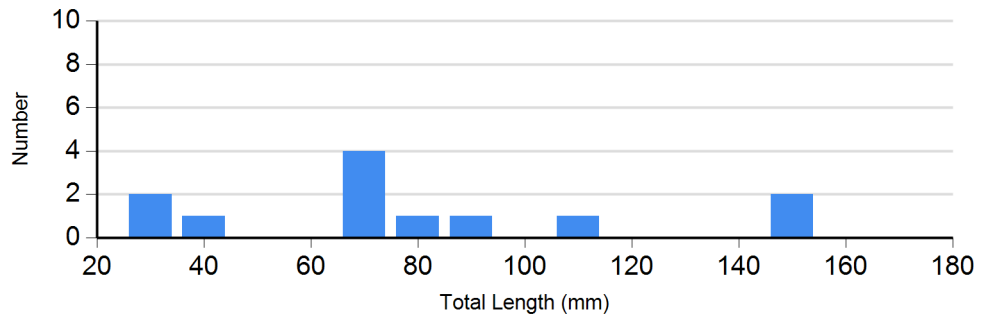
Site: 986
Species: Longnose Dace



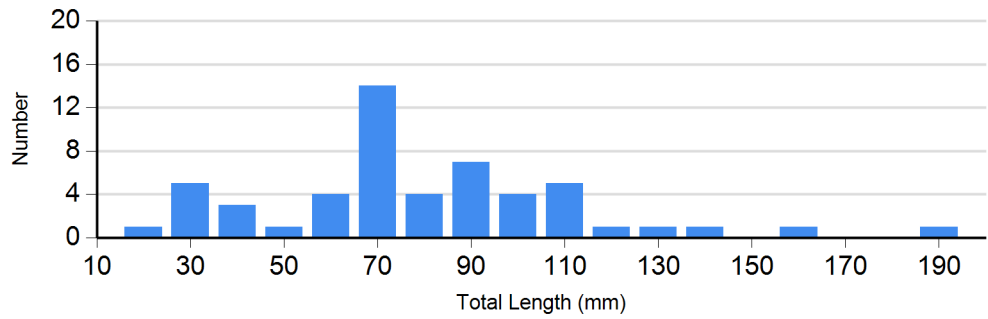
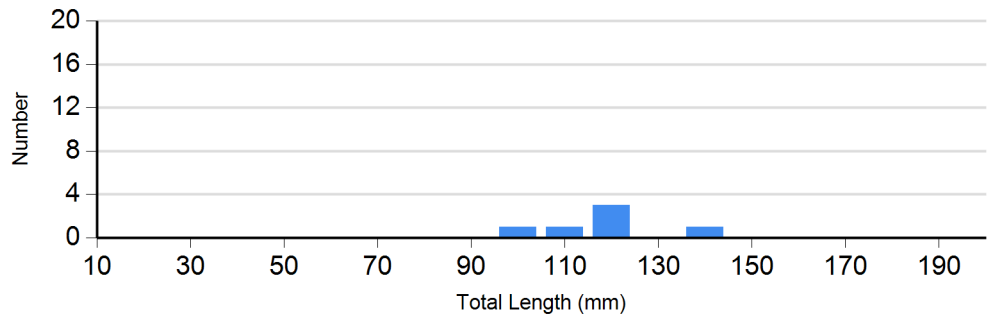


Site: 986
Species: Mountain Sucker

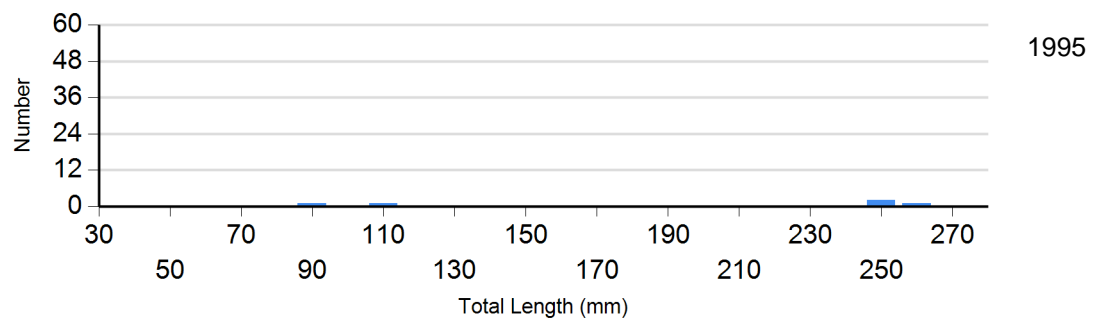
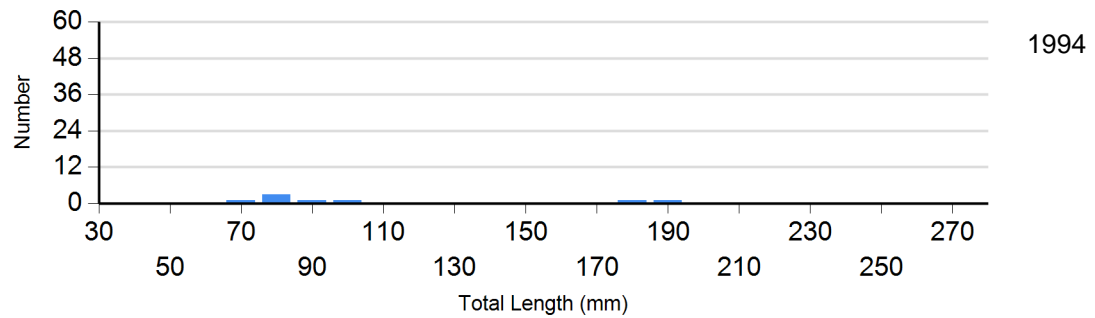
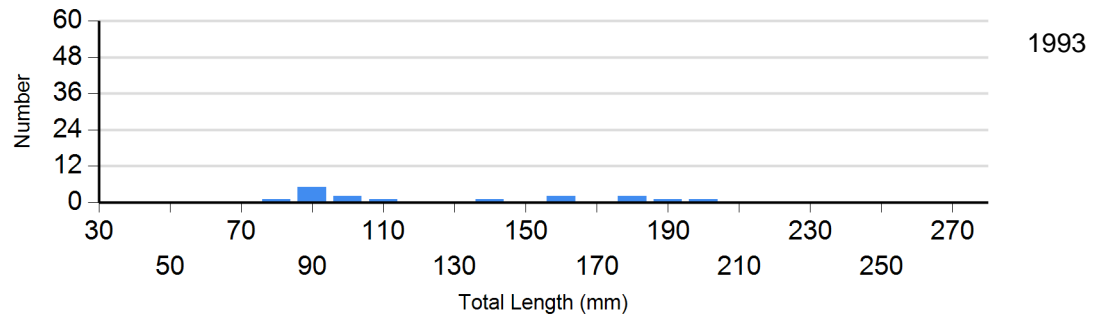
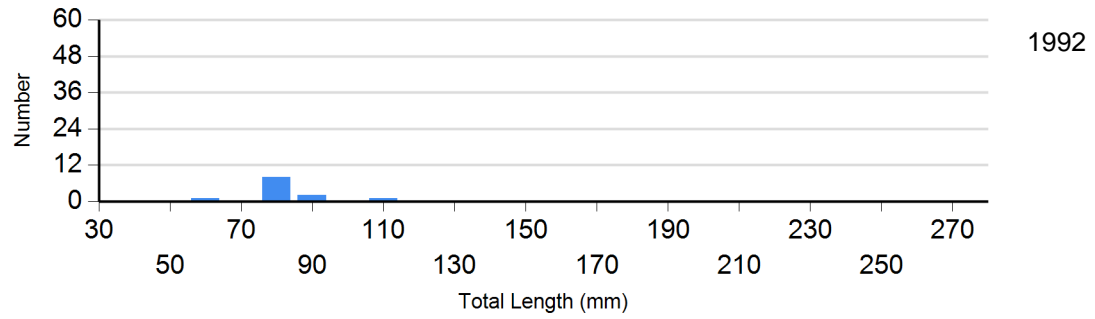


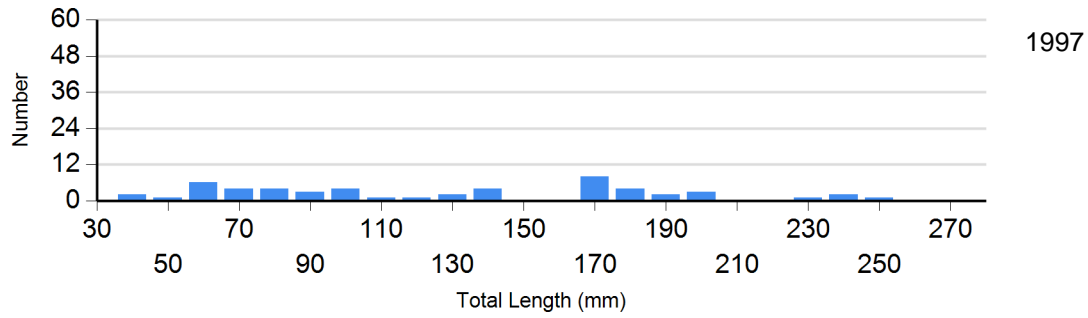
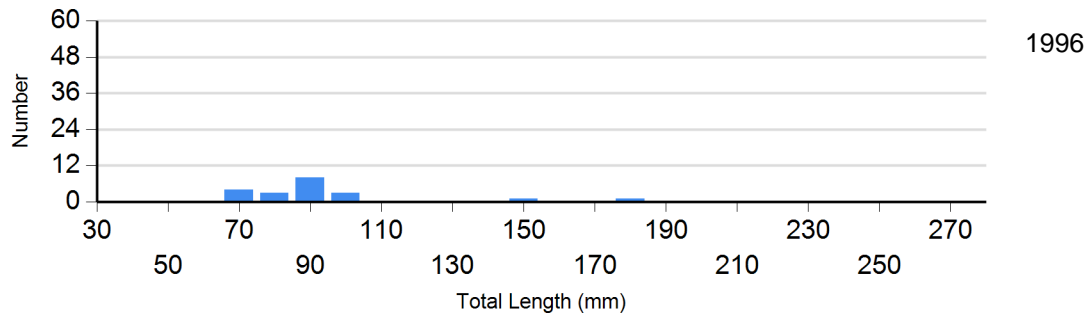


Site: 986
Species: White Sucker

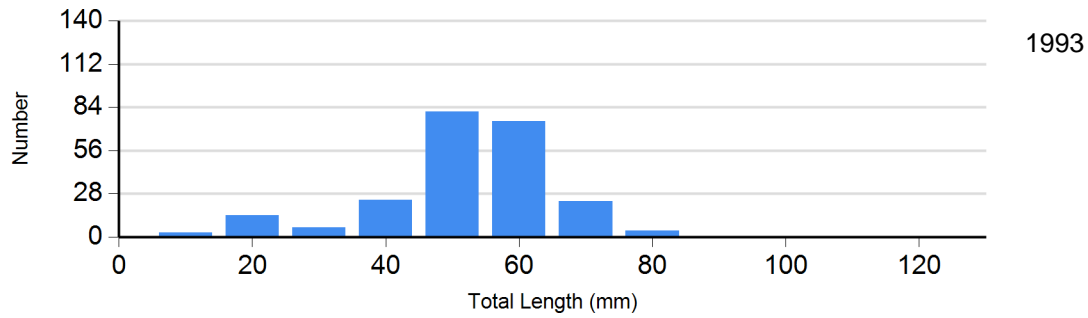
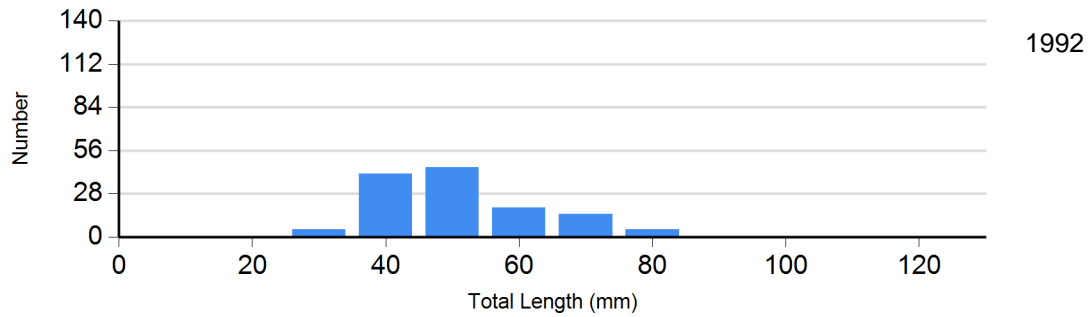


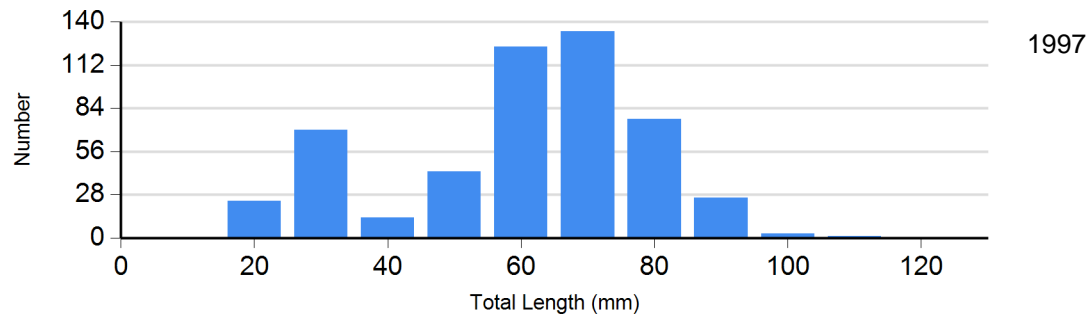
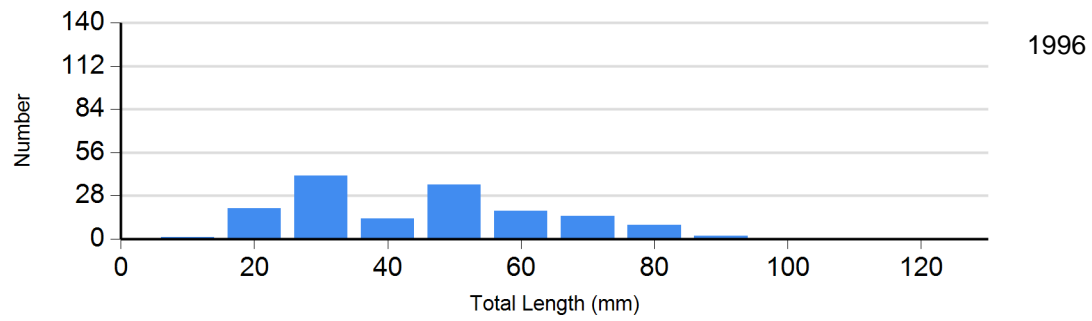
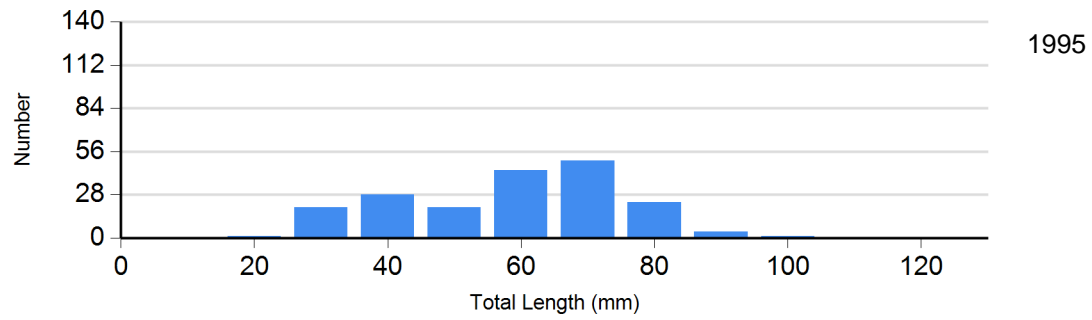
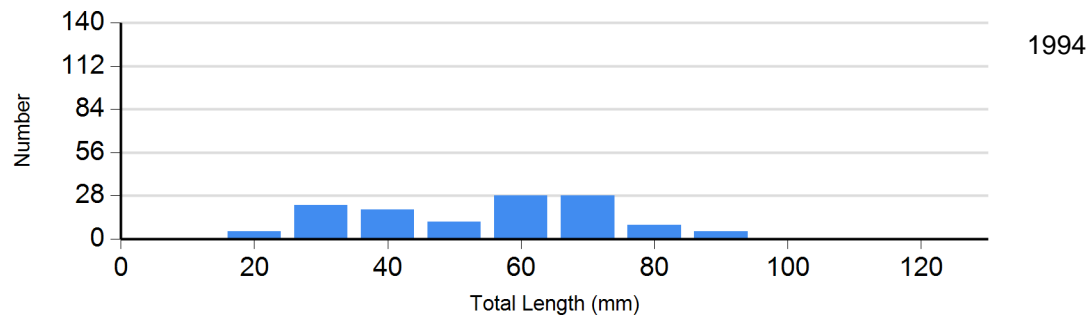
Site: 988
Species: Brook Trout



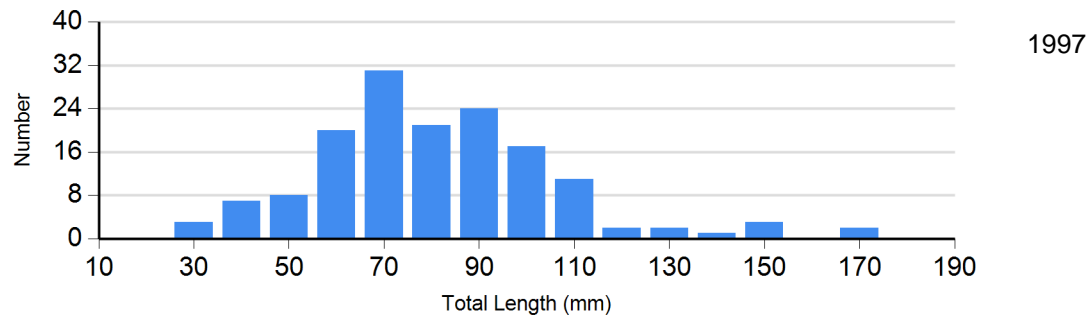
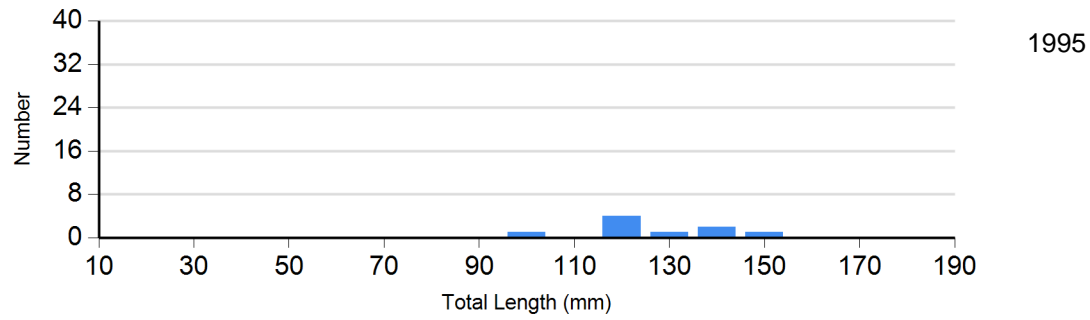
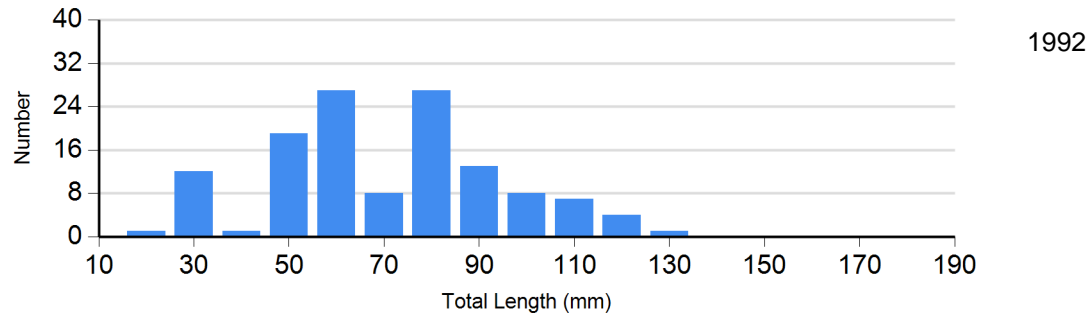


Site: 988
Species: Longnose Dace

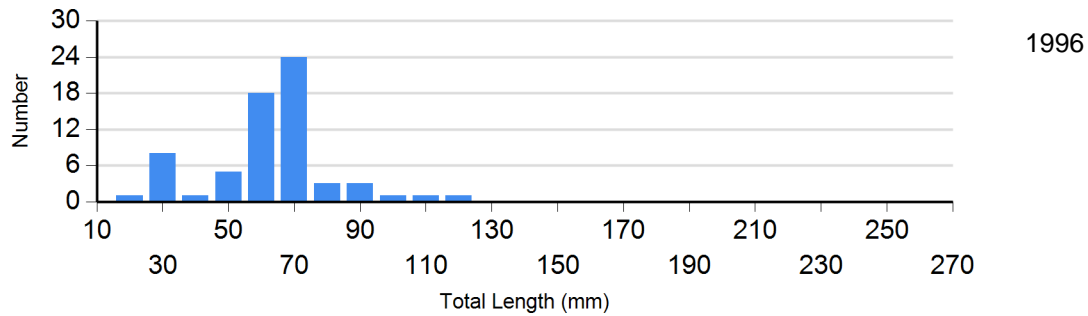
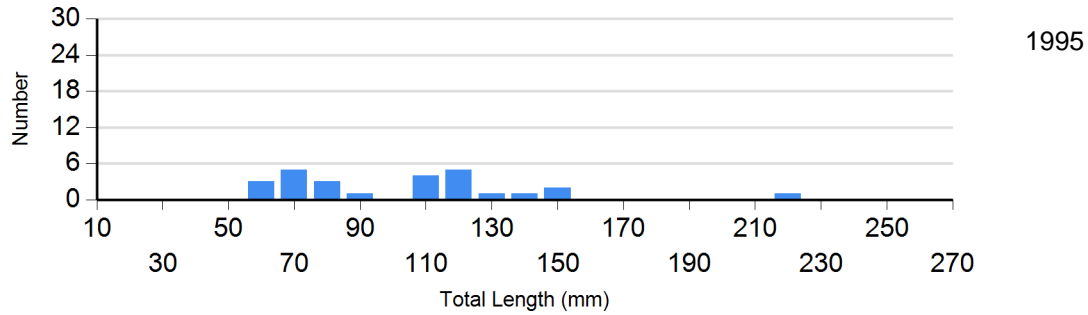
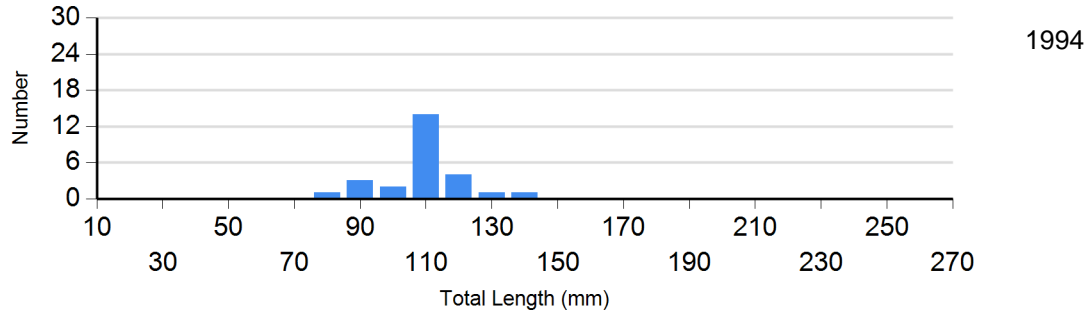
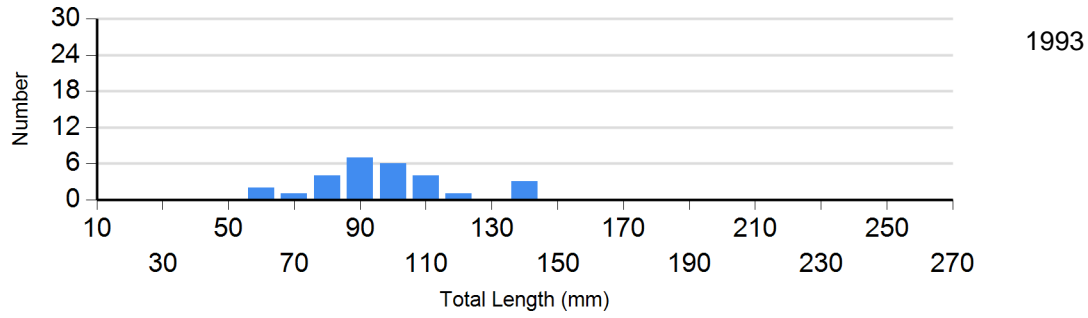


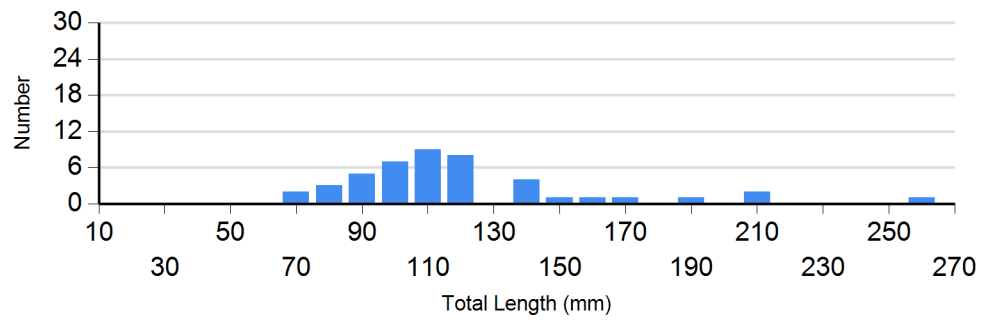


Site: 988
Species: Mountain Sucker



Site: 988
Species: White Sucker





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