

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Whitewood Creek, Lawrence County**  
**09-0056-00**  
**1995**

Table 1. Population and Biomass Estimates for Whitewood Creek

**Site Number:** 515

**Site Midpoint (Latitude, Longitude):** 44.41178603, -103.69411585

**Survey Completed by:**

**Stream Classification:** BR2

**Date Sampled:** 09/21/1995

**Site Length (m):** 99

**Mean Width (m):** 9.8

**Number of Pass:** 3

**Conductivity (umhos/cm):**

**pH:**

**Water Temperature (C):**

**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)
Brown Trout	<200mm	1	1	1	1	10	0	10	4	0.27	16	143.0	30.0
Brown Trout	>=200mm	28	28	28	28	286	61	283	116	54.83	455	267.4	214.9
Brown Trout	All	29	29	29	29	296	62	293	120	55.10	471	263.1	208.6
Mountain Sucker	All	140	140	142	140	1429	70	1414	579	62.50	2275	40.8	49.0

**Site Number:** 539

**Site Midpoint (Latitude, Longitude):** 44.39558878, -103.70337461

**Survey Completed by:**

**Stream Classification:** BR2

**Date Sampled:** 09/20/1995

**Site Length (m):** 161

**Mean Width (m):** 6.4

**Number of Pass:** 3

**Conductivity (umhos/cm):**

**pH:**

**Water Temperature (C):**

**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)
Brown Trout	<200mm	1	1	1	1	16	0	6	6	0.32	10	138.0	23.0
Brown Trout	>=200mm	20	20	21	20	313	81	124	127	72.49	200	283.0	259.8
Brown Trout	All	21	21	22	21	328	82	130	133	72.81	210	276.1	248.5
Mountain Sucker	All	146	154	163	146	2406	109	957	975	97.76	1539	49.7	45.5

**Site Number:** 558  
**Site Midpoint (Latitude, Longitude):** 44.38550441, -103.71870274  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BR1

**Date Sampled:** 09/07/1995      **Conductivity (umhos/cm):** 920  
**Site Length (m):** 90      **pH:** 8.7  
**Mean Width (m):** 4.9      **Water Temperature (C):** 13.0  
**Number of Pass:** 3      **Voltage:** 250

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brown Trout	<200mm	25	27	32	25	547	31	300	221	27.97	483	168.6	57.3
Brown Trout	>=200mm	28	28	29	28	567	74	311	230	66.35	501	237.0	131.1
Brown Trout	All	53	55	59	53	1113	107	611	451	95.73	983	204.8	96.3
Hatchery Brown Trout	<200mm	1	1	5	1	20	1	11	8	1.01	18	177.0	56.0
Hatchery Brown Trout	>=200mm	24	24	25	24	486	60	267	197	53.55	429	232.5	123.5
Hatchery Brown Trout	All	25	25	27	25	506	61	278	205	54.57	447	230.2	120.8
Longnose Dace	All	7	8	14	7	162	1	89	66	1.09	143	89.9	7.6
Mountain Sucker	All	17	20	29	17	405	27	222	164	24.43	358	174.6	67.6

**Site Number:** 588  
**Site Midpoint (Latitude, Longitude):** 44.36654564, -103.73424434  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BR2

**Date Sampled:** 09/07/1995      **Conductivity (umhos/cm):** 1120  
**Site Length (m):** 89      **pH:** 8.8  
**Mean Width (m):** 4.3      **Water Temperature (C):** 16.0  
**Number of Pass:** 3      **Voltage:** 250

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brown Trout	<200mm	11	11	13	11	253	6	124	103	5.66	199	128.7	25.0
Brown Trout	>=200mm	6	6	9	6	138	18	67	56	15.68	108	228.3	127.0
Brown Trout	All	17	18	22	17	415	25	202	168	22.59	325	163.9	61.0

Hatchery Brown Trout	>=200mm	16	17	21	16	392	52	191	159	46.52	307	235.3	133.0
Hatchery Brown Trout	All	16	17	21	16	392	52	191	159	46.52	307	235.3	133.0
Longnose Dace	All	1	1	1	1	23	0	11	9	0.08	18	77.0	4.0
Mountain Sucker	All	2	2	3	2	46	4	22	19	3.99	36	207.0	97.0

**Site Number:** 599

**Site Midpoint (Latitude, Longitude):** 44.36363265, -103.73830179

**Survey Completed by:** OEA Research Inc.

**Stream Classification:** BK3, BR1

**Date Sampled:** 09/15/1995

**Site Length (m):** 100

**Mean Width (m):** 4.1

**Number of Pass:** 4

**Conductivity (umhos/cm):**

**pH:**

**Water Temperature (C):**

**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	4	4	5	4	98	3	40	40	2.90	64	147.3	33.3
Brook Trout	>=200mm	2	2	2	2	49	7	20	20	6.29	32	234.5	144.5
Brook Trout	All	6	6	7	6	146	10	60	59	9.19	97	176.3	70.3
Brown Trout	<200mm	2	2	3	2	49	3	20	20	2.66	32	164.5	61.0
Brown Trout	>=200mm	18	18	20	18	439	69	180	178	62.00	290	245.0	158.2
Brown Trout	All	20	20	22	20	488	72	200	198	64.66	322	237.0	148.5
Mountain Sucker	All	1	1	3	1	24	2	10	10	2.18	16	190.0	100.0

**Site Number:** 612

**Site Midpoint (Latitude, Longitude):** 44.35478049, -103.73811696

**Survey Completed by:** OEA Research Inc.

**Stream Classification:** BK3, BR2, RB1

**Date Sampled:** 09/17/1995

**Site Length (m):** 100

**Mean Width (m):** 4.5

**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	6	6	8	6	135	4	60	54	3.96	97	149.5	33.0
Brook Trout	>=200mm	2	2	2	2	45	5	20	18	4.66	32	211.5	116.5
Brook Trout	All	8	8	10	8	179	10	80	73	8.63	129	165.0	53.9
Brown Trout	<200mm	8	8	10	8	179	13	80	73	11.83	129	188.8	73.9
Brown Trout	>=200mm	14	14	16	14	314	47	140	127	41.98	225	238.9	149.8
Brown Trout	All	22	22	24	22	493	60	220	200	53.81	354	220.6	122.2
Longnose Dace	All	3	3	5	3	67	0	30	27	0.30	48	89.3	5.0
Rainbow Trout	>=200mm	3	3	4	3	67	8	30	27	7.45	48	221.0	124.0
Rainbow Trout	All	3	3	4	3	67	8	30	27	7.45	48	221.0	124.0

**Site Number:** 679  
**Site Midpoint (Latitude, Longitude):** 44.32613292, -103.76630646  
**Survey Completed by:** OEA Research Inc.  
**Stream Classification:** BK3

**Date Sampled:** 06/07/1995  
**Site Length (m):** 100  
**Mean Width (m):** 5.7  
**Number of Pass:** 1  
**Conductivity (umhos/cm):**  
**pH:**  
**Water Temperature (C):** 8.8  
**Voltage:**

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% CI	Lower 95% CI	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brook Trout	<200mm	33	33	33	33	575	13	330	233	11.62	531	117.2	22.6
Brook Trout	>=200mm	2	2	2	2	35	4	20	14	3.36	32	211.0	108.0
Brook Trout	All	35	35	35	35	610	17	350	247	14.98	563	122.6	27.5

**Site Number:** 679  
**Site Midpoint (Latitude, Longitude):** 44.32613292, -103.76630646  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BK2

**Date Sampled:** 06/19/1995  
**Site Length (m):** 100  
**Mean Width (m):** 4.7  
**Number of Pass:** 3  
**Conductivity (umhos/cm):** 235  
**pH:** 8.6  
**Water Temperature (C):** 10.0  
**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	67	90	121	67	1915	47	900	776	42.10	1448	132.8	24.6
Brook Trout	>=200mm	6	6	7	6	128	12	60	52	10.98	97	217.0	96.3
Brook Trout	All	73	93	119	73	1979	61	930	801	54.06	1496	139.8	30.6
Longnose Dace	All	4	4	6	4	85	1	40	34	1.10	64	111.0	14.5

Site Number: 690

Site Midpoint (Latitude, Longitude): 44.31971358, -103.76779760

Survey Completed by: OEA Research Inc.

Stream Classification: BK2, BR2, RB0

Date Sampled: 06/07/1995

Site Length (m): 100

Mean Width (m): 4.2

Number of Pass: 1

Conductivity (umhos/cm):

pH:

Water Temperature (C): 6.7

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	27	27	27	27	649	18	270	263	15.88	434	129.1	27.4
Brook Trout	>=200mm	3	3	3	3	72	8	30	29	6.87	48	216.7	106.7
Brook Trout	All	30	30	30	30	721	25	300	292	22.75	483	137.9	35.3
Brown Trout	<200mm	2	2	2	2	48	4	20	19	3.52	32	190.0	82.0
Brown Trout	>=200mm	15	15	15	15	361	58	150	146	51.90	241	240.5	161.2
Brown Trout	All	17	17	17	17	409	62	170	166	55.42	274	234.5	151.9
Longnose Dace	All	2	2	2	2	48	0	20	19	0.09	32	68.5	2.0
Rainbow Trout	<200mm	2	2	2	2	48	4	20	19	3.46	32	192.0	80.5
Rainbow Trout	All	2	2	2	2	48	4	20	19	3.46	32	192.0	80.5

Site Number: 690

Site Midpoint (Latitude, Longitude): 44.31971358, -103.76779760

Survey Completed by: South Dakota Game, Fish and Parks

Date Sampled: 06/19/1995

Site Length (m): 100

Mean Width (m): 4.5

Conductivity (umhos/cm):

pH:

242

8.5

Stream Classification: BK2

Number of Pass: 3

Water Temperature (C): 9.0

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	53	80	124	53	1778	54	800	720	48.55	1287	137.9	30.6
Brook Trout	>=200mm	7	7	8	7	156	17	70	63	15.02	113	221.9	108.1
Brook Trout	All	60	80	109	60	1778	70	800	720	62.91	1287	147.7	39.6
Hatchery Brown Trout	<200mm	7	6	10	7	133	10	60	54	8.50	97	176.3	71.4
Hatchery Brown Trout	>=200mm	24	24	26	24	533	66	240	216	59.23	386	229.3	124.4
Hatchery Brown Trout	All	31	37	49	31	822	92	370	333	82.53	595	217.3	112.4
Hatchery Rainbow Trout	<200mm	1	1	2	1	22	2	10	9	1.77	16	199.0	89.0
Hatchery Rainbow Trout	All	1	1	2	1	22	2	10	9	1.77	16	199.0	89.0
Longnose Dace	All	13	22	56	13	489	5	220	198	4.23	354	102.0	9.7

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	
<b>Class BR1</b>	Number of wild Brown Trout exceeds 150 per acre
<b>Class BR2</b>	Number of wild Brook Trout ranges from 25 to 150 per acre
<b>Class BR3</b>	Number of wild Brown Trout is less than 25 per acre
<b>Class BK1</b>	Number of wild Brook Trout exceeds 150 per acre
<b>Class BK2</b>	Number of wild Brook Trout ranges from 25 to 150 per acre
<b>Class BK3</b>	Number of wild Brook Trout is less than 25 per acre
<b>Class RB1</b>	Number of wild Rainbow Trout exceeds 25 per acre
<b>Class RB2</b>	Number of wild Rainbow Trout is less than 25 per acre

Table 2. Species composition and population estimates on Whitewood Creek, 1985-1995

**Site 515**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 05, 1994	112	101-125	
	Sep 21, 1995	1	1-1	
Brown Trout >=200mm	Oct 05, 1994	1	1-1	BR3
	Sep 21, 1995	28	28-28	BR2
Longnose Dace	Oct 05, 1994	988	989-1043	
Mountain Sucker	Oct 05, 1994	259	199-319	
	Sep 21, 1995	140	140-142	

**Site 539**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Sep 20, 1995	1	1-1	
Brown Trout >=200mm	Sep 20, 1995	20	20-21	BR2
Mountain Sucker	Sep 20, 1995	154	146-163	

**Site 558**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 27, 1994	1	1-2	
Brown Trout <200mm	Oct 03, 1992	102	60-173	
	Sep 14, 1993	43	41-48	
	Sep 27, 1994	60	52-72	
	Sep 07, 1995	27	25-32	
Brown Trout >=200mm	Oct 03, 1992	24	24-25	BR1
	Sep 14, 1993	50	50-51	BR1
	Sep 27, 1994	44	44-46	BR1
	Sep 07, 1995	28	28-29	BR1
Hatchery Brown Trout <200mm	Sep 07, 1995	1	1-5	



Hatchery Brown Trout >=200mm	Oct 03, 1992	68	68-69
	Sep 14, 1993	19	19-20
	Sep 27, 1994	17	17-18
	Sep 07, 1995	24	24-25
Longnose Dace	Oct 03, 1992	36	14-150
	Sep 14, 1993	14	14-15
	Sep 27, 1994	33	19-77
	Sep 07, 1995	8	7-14
Mountain Sucker	Oct 03, 1992	44	36-59
	Sep 14, 1993	15	14-19
	Sep 27, 1994	23	22-27
	Sep 07, 1995	20	17-29

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**Site 588**

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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Trout <200mm	Sep 27, 1994	2	2-3	
Brook Trout >=200mm	Sep 27, 1994	5	5-6	BK2

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Brown Trout <200mm	Feb 02, 1993	6	6-7	
	Sep 27, 1994	43	42-46	
	Sep 07, 1995	11	11-13	
Brown Trout >=200mm	Feb 02, 1993	9	9-11	BR2
	Sep 27, 1994	26	26-27	BR1
	Sep 07, 1995	6	6-9	BR2
Hatchery Brown Trout <200mm	Feb 02, 1993	2	2-2	
Hatchery Brown Trout >=200mm	Feb 02, 1993	28	28-30	
	Sep 27, 1994	22	22-23	
	Sep 07, 1995	17	16-21	
Longnose Dace	Feb 02, 1993	3	3-4	
	Sep 07, 1995	1	1-1	
Mountain Sucker	Feb 02, 1993	1	1-1	
	Sep 27, 1994	4	4-4	
	Sep 07, 1995	2	2-3	

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 12, 1994	1	1-1	
	Sep 15, 1995	4	4-5	
Brook Trout >=200mm	Sep 15, 1995	2	2-2	BK3
Brown Trout <200mm	Oct 12, 1994	26	22-36	
	Sep 15, 1995	2	2-3	
Brown Trout >=200mm	Oct 12, 1994	37	37-38	BR1
	Sep 15, 1995	18	18-20	BR1
Longnose Dace	Oct 12, 1994	1	1-2	
Mountain Sucker	Oct 12, 1994	4	4-5	
	Sep 15, 1995	1	1-3	

**Site 612**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 27, 1993	3	3-4	
	Oct 12, 1994	11	11-12	
	Sep 17, 1995	6	6-8	

Brook Trout >=200mm	Oct 12, 1994	2	2-2	BK3
	Sep 17, 1995	2	2-2	BK3
Brown Trout <200mm	Oct 27, 1993	2	2-4	
	Oct 12, 1994	4	4-4	
	Sep 17, 1995	8	8-10	
Brown Trout >=200mm	Oct 27, 1993	30	30-31	BR3
	Oct 12, 1994	11	11-11	BR2
	Sep 17, 1995	14	14-16	BR2
Longnose Dace	Oct 27, 1993	1	1-2	
	Oct 12, 1994	5	5-7	
	Sep 17, 1995	3	3-5	
Mountain Sucker	Oct 27, 1993	8	8-10	
Rainbow Trout >=200mm	Oct 12, 1994	1	1-1	RB2
	Sep 17, 1995	3	3-4	RB1

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Site 679

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 07, 1995	33	33-33	
	Jun 19, 1995	90	67-121	
Brook Trout >=200mm	Jun 07, 1995	2	2-2	BK3
	Jun 19, 1995	6	6-7	BK2
Longnose Dace	Jun 19, 1995	4	4-6	

**Site 690**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 07, 1995	27	27-27	
	Jun 19, 1995	80	53-124	
Brook Trout >=200mm	Jun 07, 1995	3	3-3	BK2
	Jun 19, 1995	7	7-8	BK2
Brown Trout <200mm	Jun 07, 1995	2	2-2	
Brown Trout >=200mm	Jun 07, 1995	15	15-15	BR2
Hatchery Brown Trout <200mm	Jun 19, 1995	6	7-10	
Hatchery Brown Trout >=200mm	Jun 19, 1995	24	24-26	

Hatchery Rainbow Trout <200mm	Jun 19, 1995	1	1-2
Longnose Dace	Jun 07, 1995	2	2-2
	Jun 19, 1995	22	13-56
Rainbow Trout <200mm	Jun 07, 1995	2	2-2

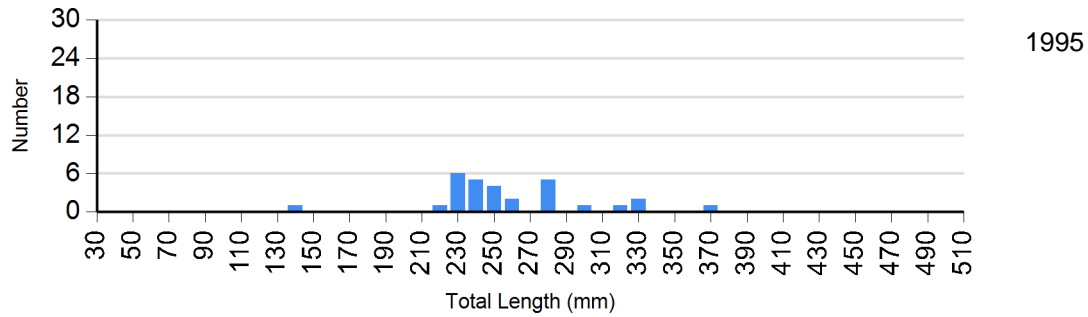
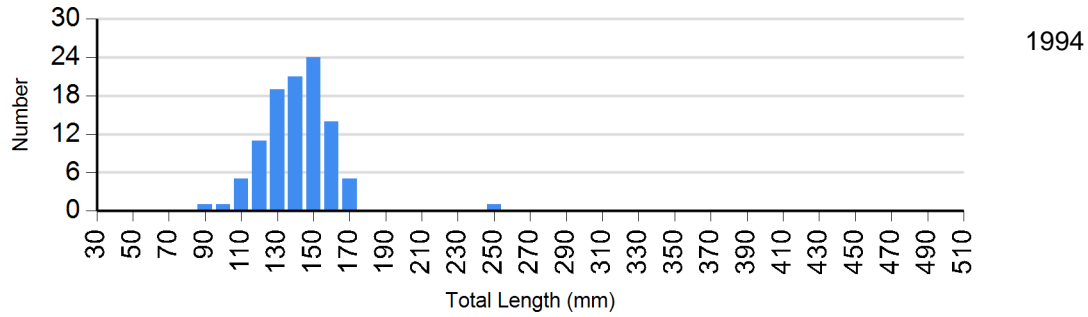
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## Length Frequency Distribution

Length frequency histogram of species sampled by year.

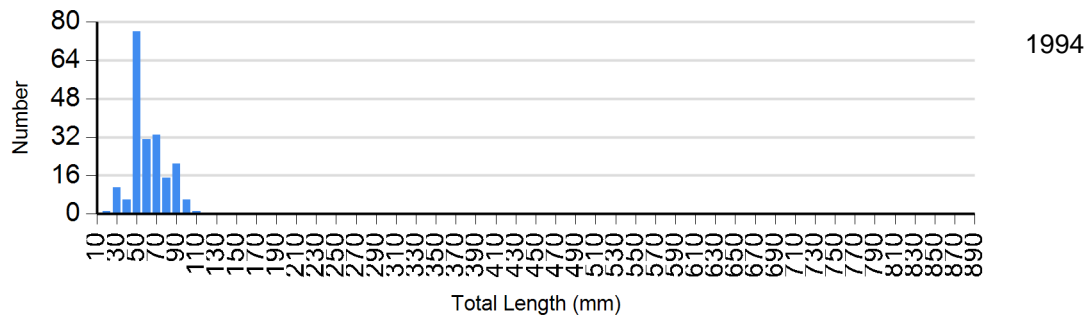
**Site:** 515

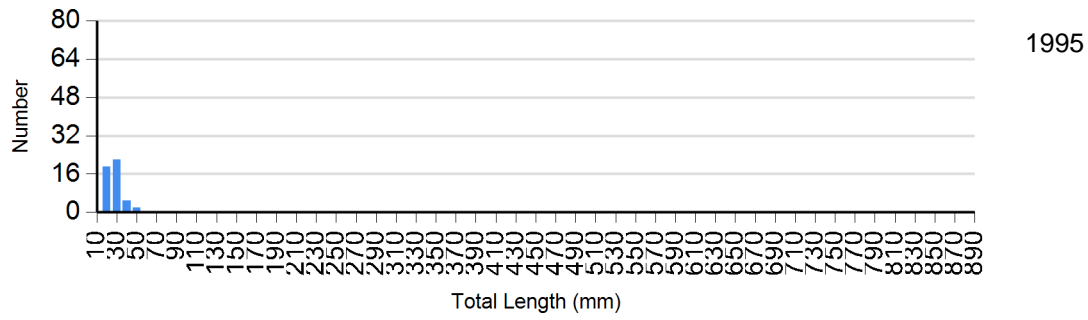
**Species:** Brown Trout



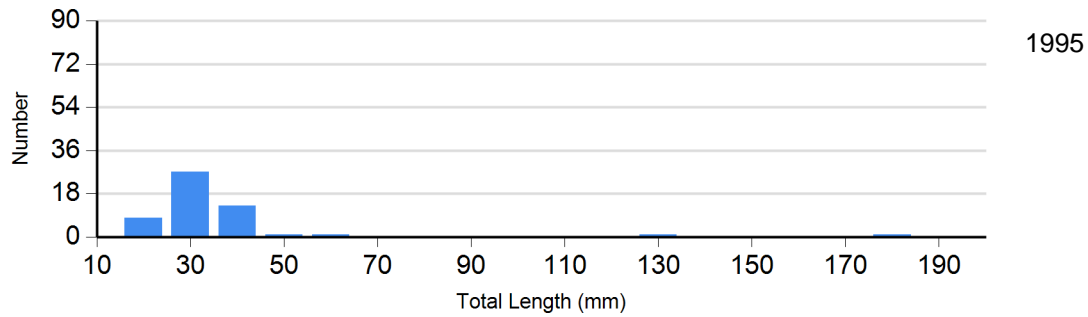
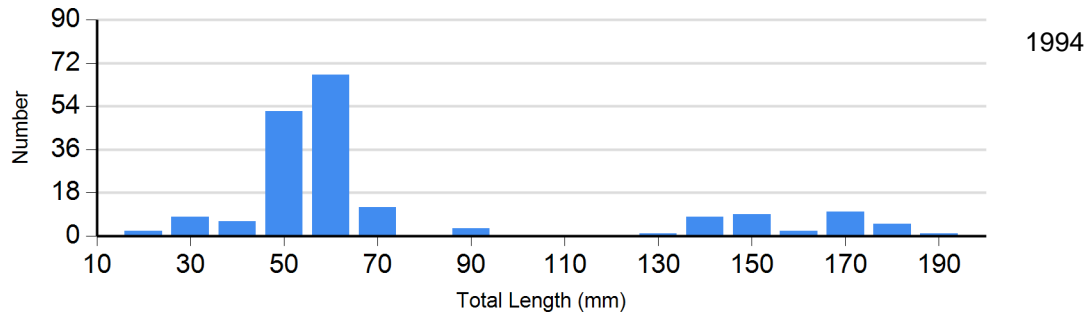
**Site:** 515

**Species:** Longnose Dace



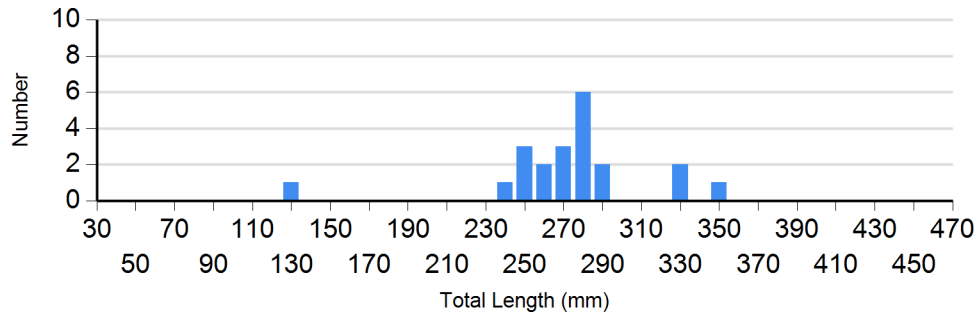


Site: 515  
Species: Mountain Sucker



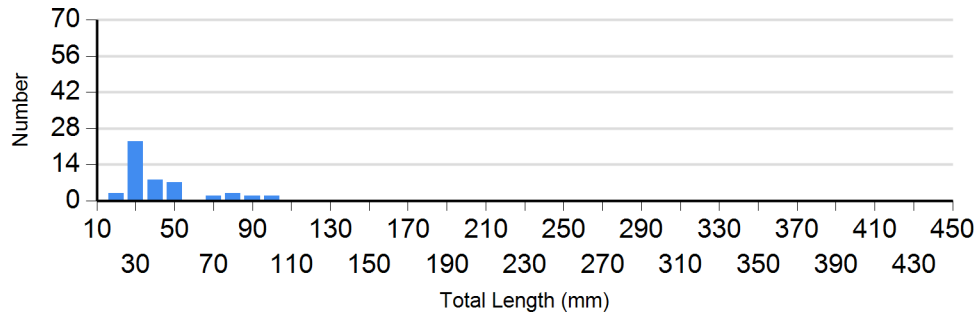


**Site:** 539  
**Species:** Brown Trout



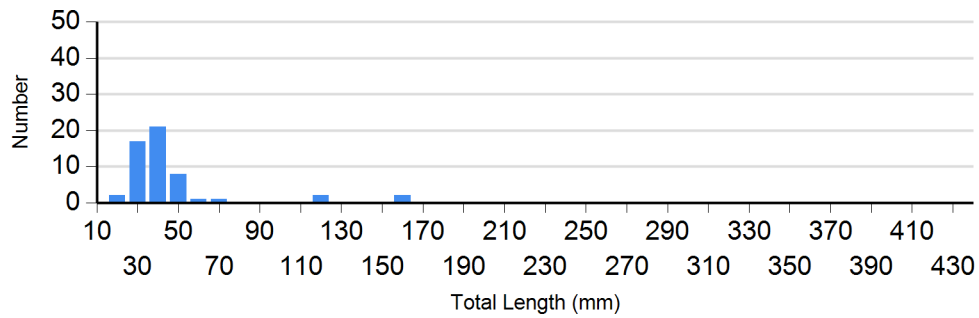
1995

**Site:** 539  
**Species:** Longnose Dace



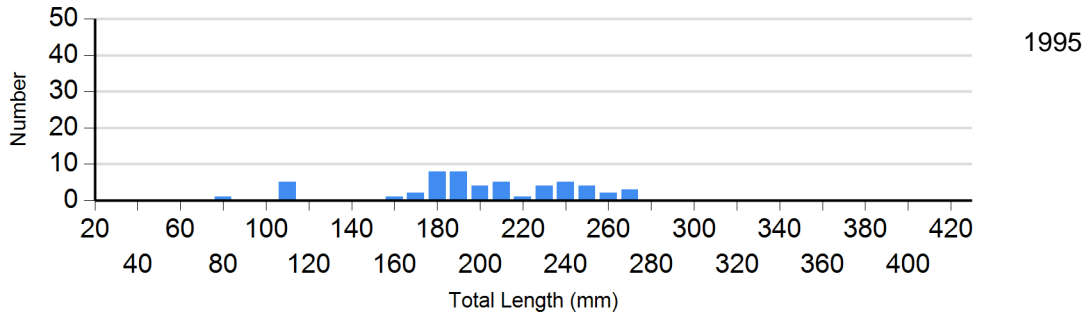
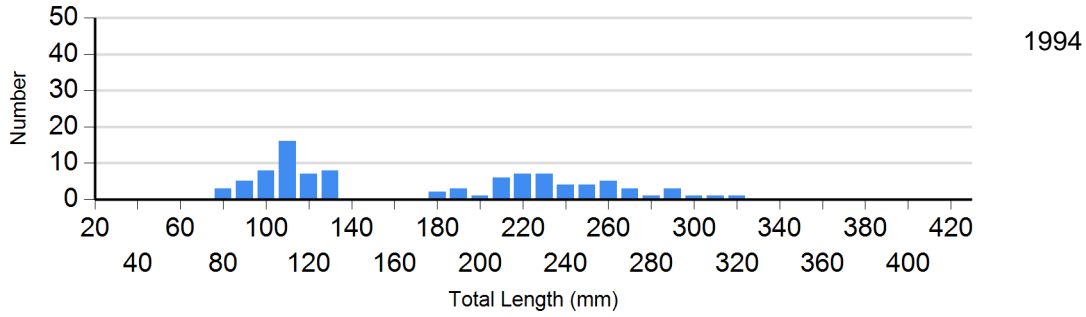
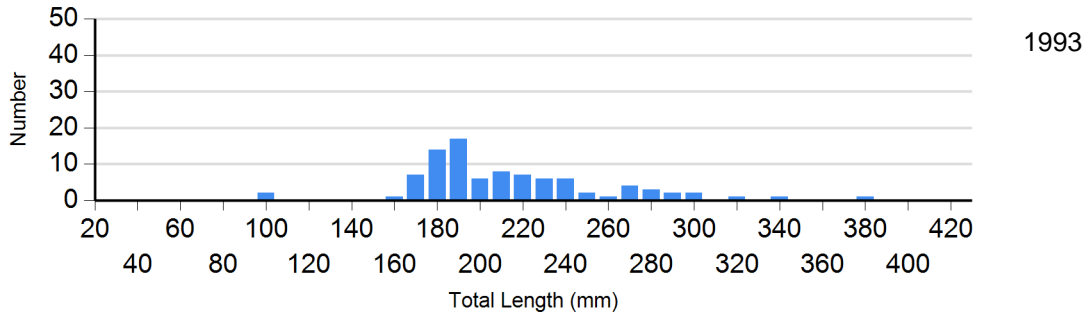
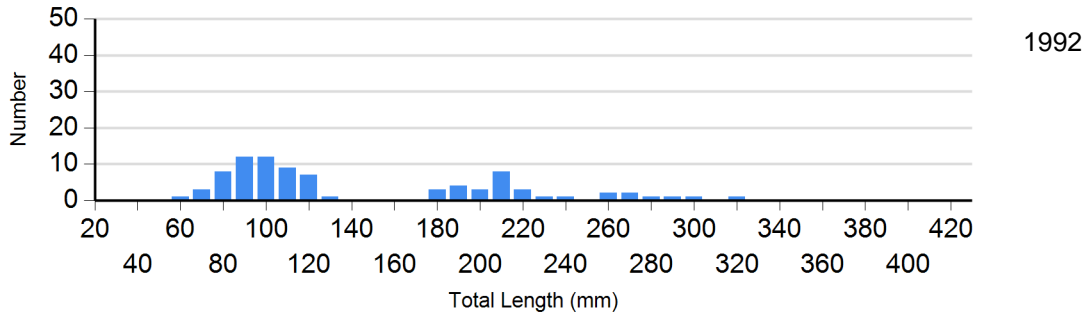
1995

**Site:** 539  
**Species:** Mountain Sucker

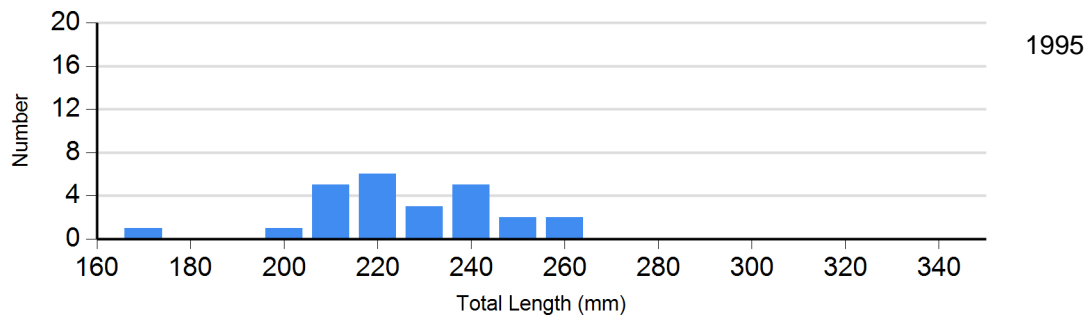
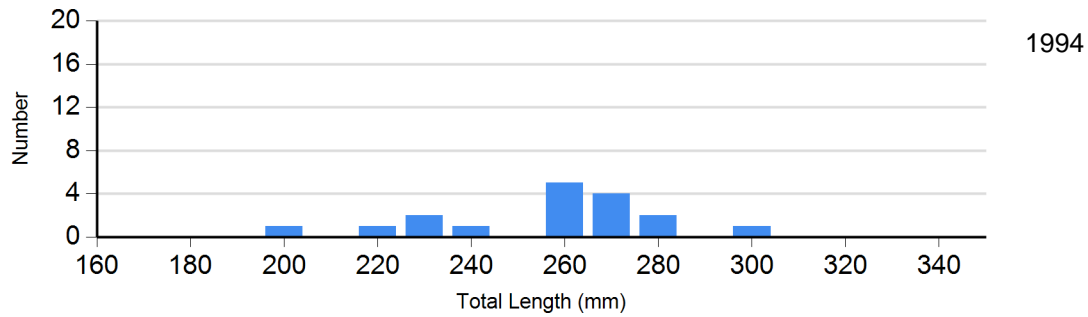
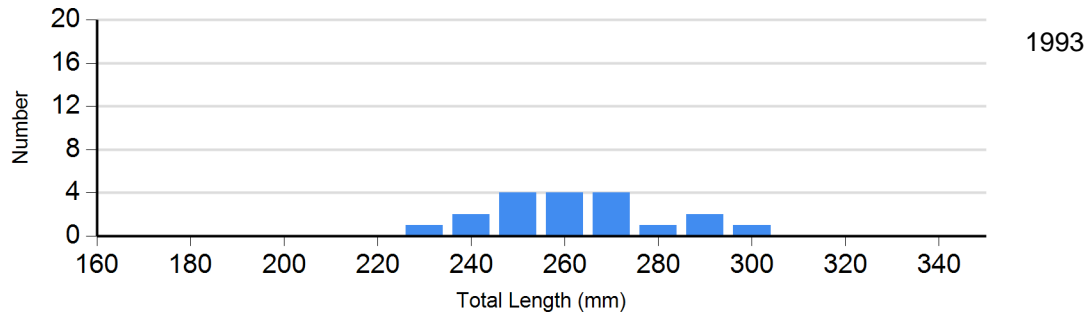
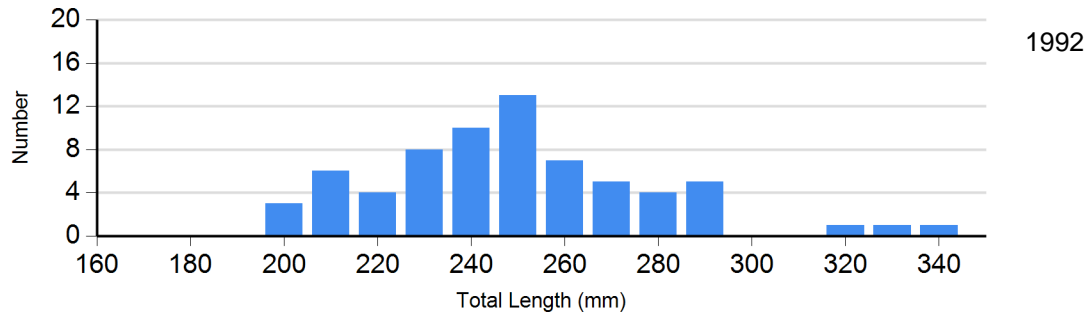


1995

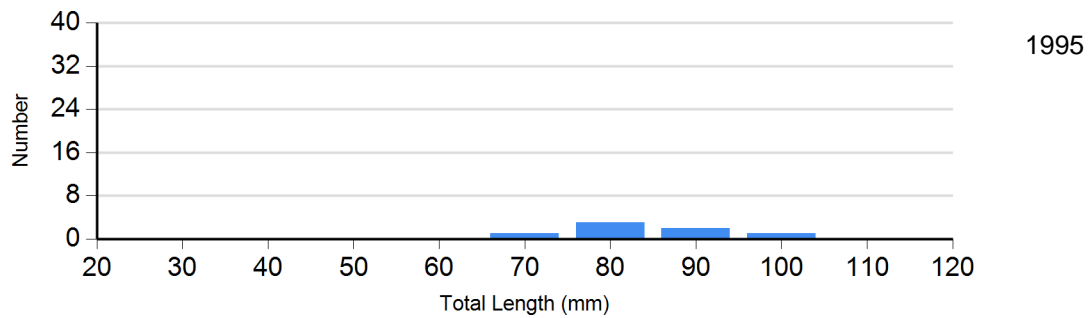
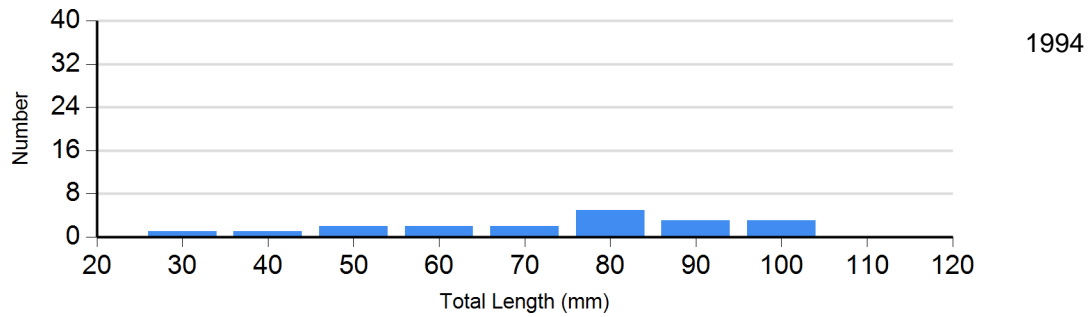
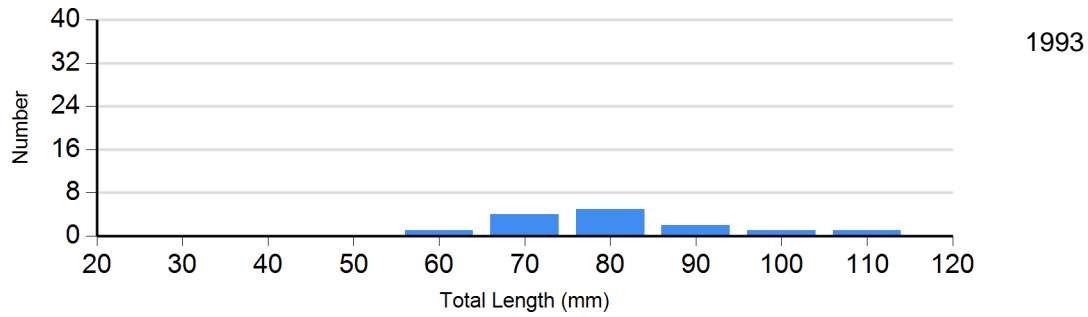
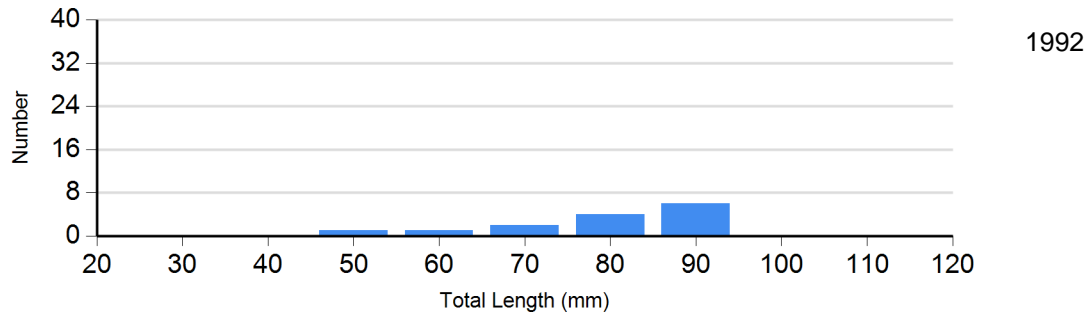
Site: 558  
Species: Brown Trout



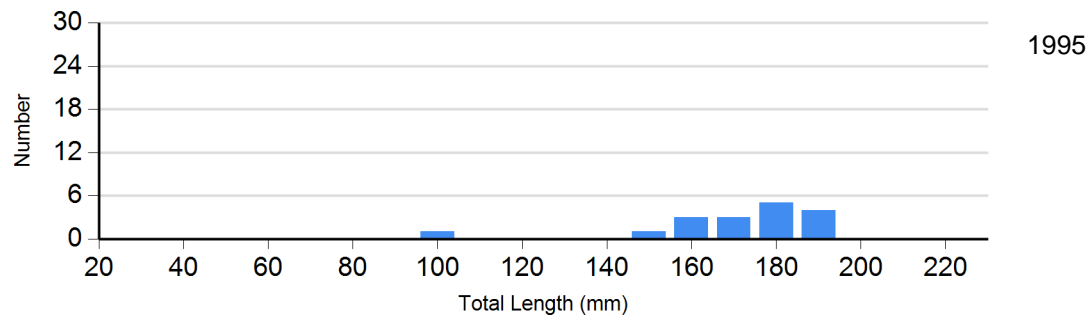
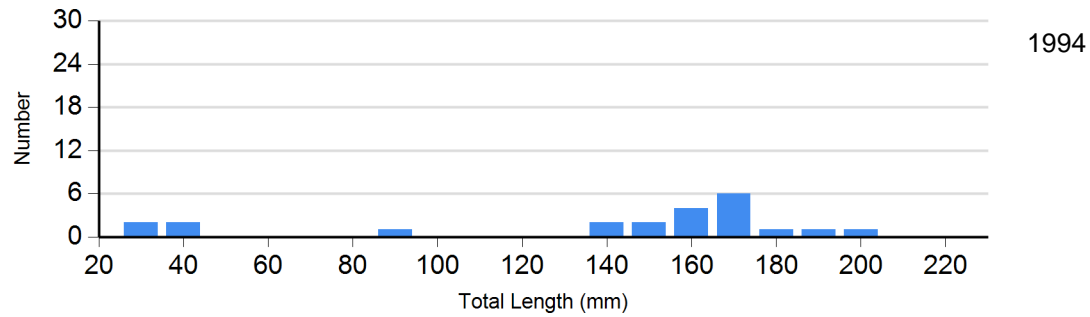
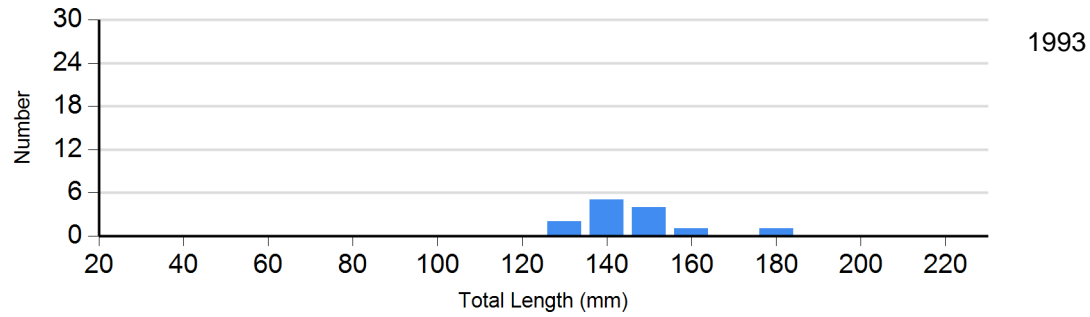
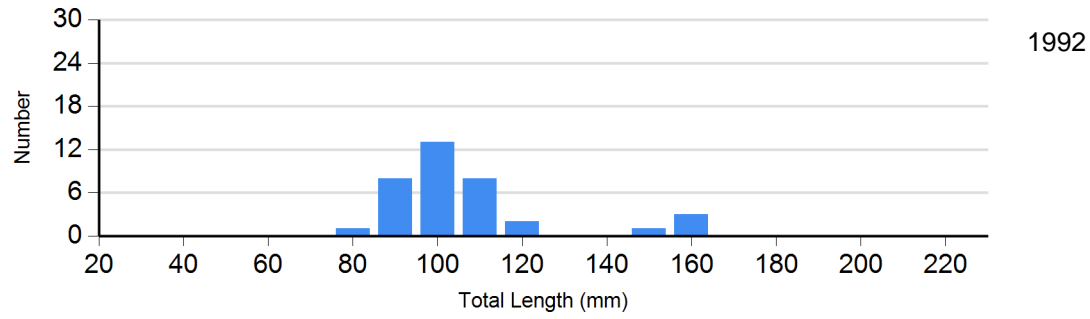
**Site:** 558  
**Species:** Hatchery Brown Trout



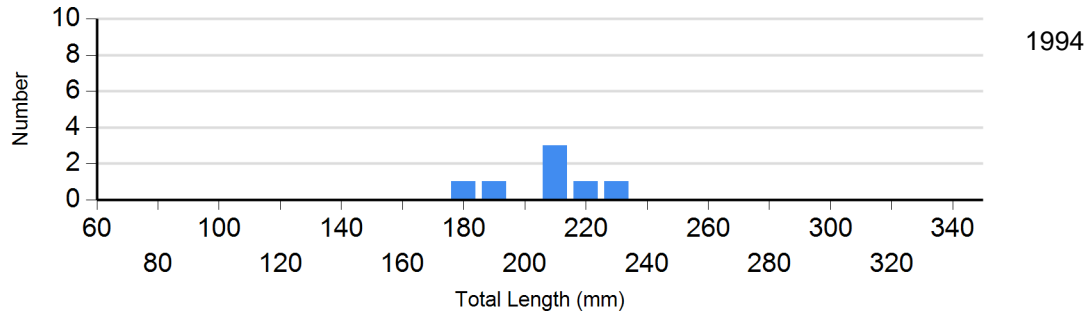
Site: 558  
Species: Longnose Dace



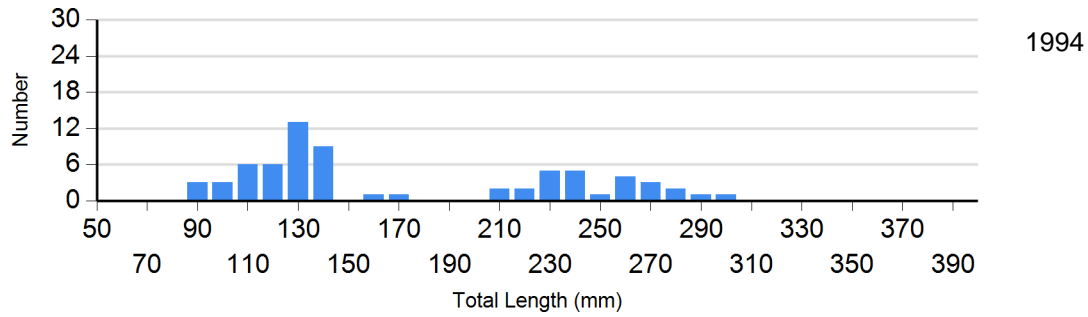
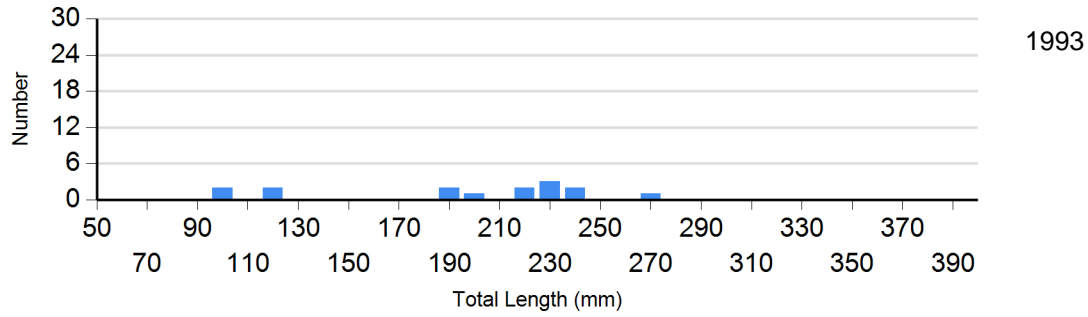
Site: 558  
Species: Mountain Sucker

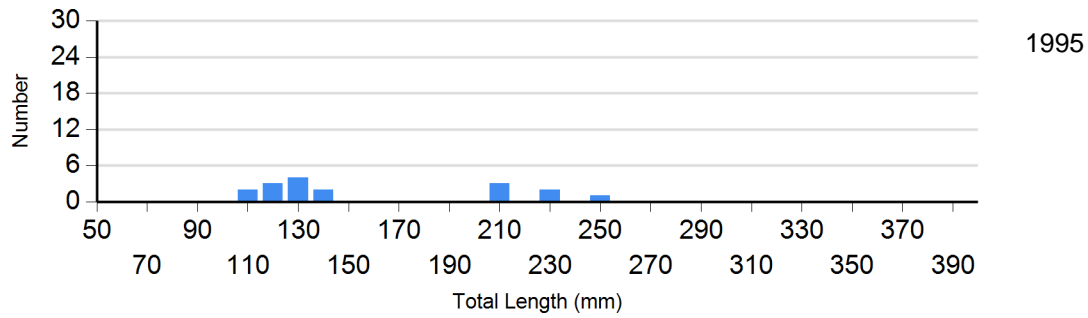


Site: 588  
Species: Brook Trout

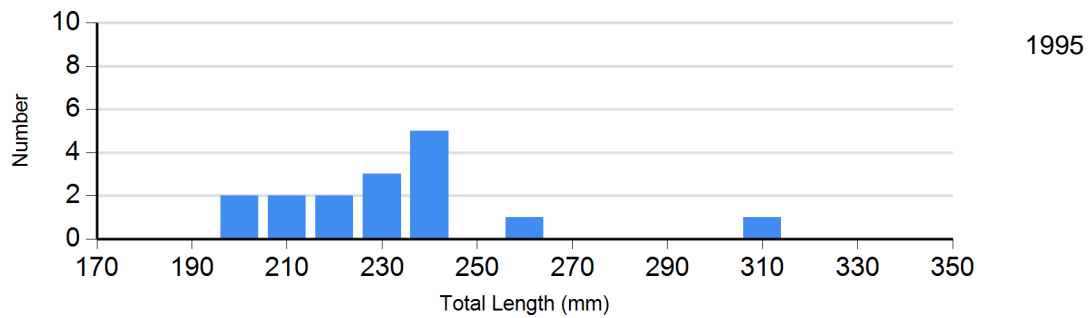
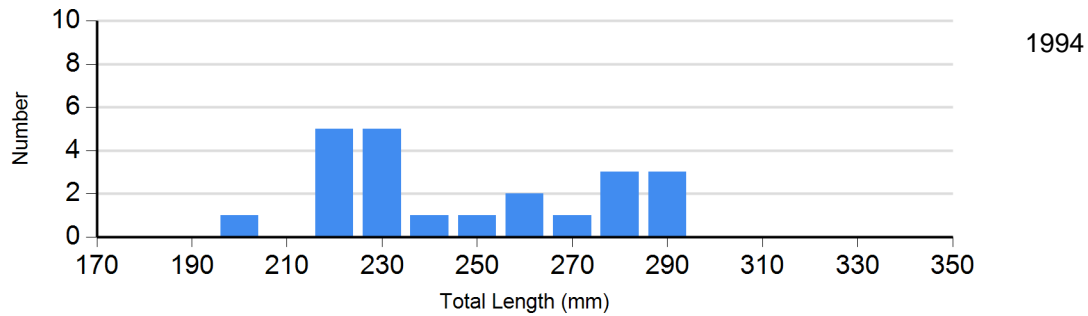
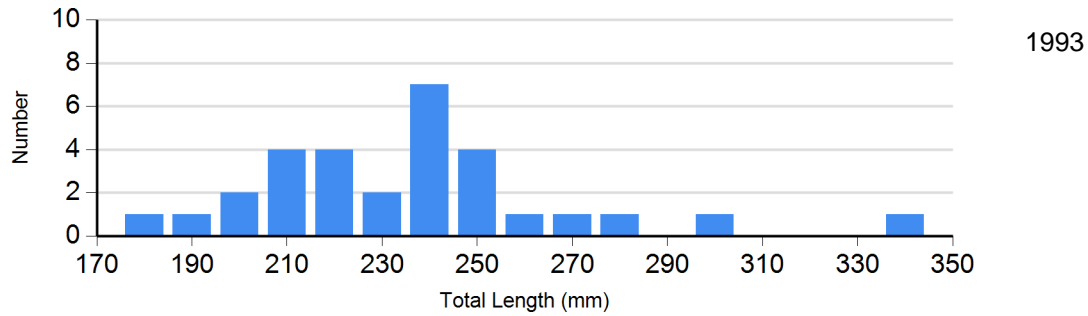


Site: 588  
Species: Brown Trout

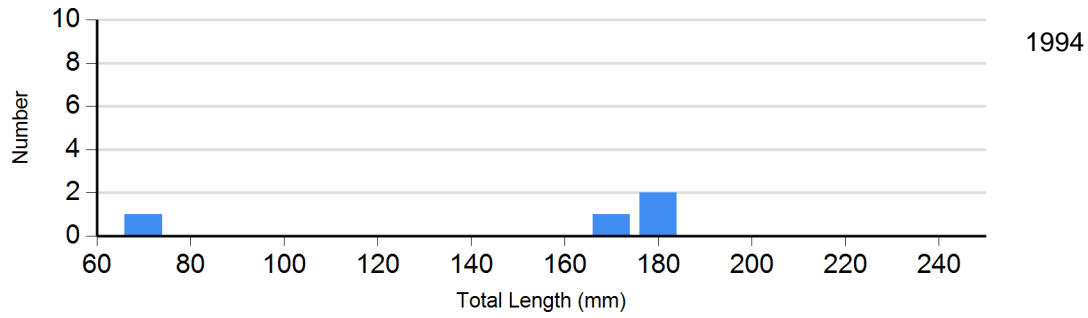




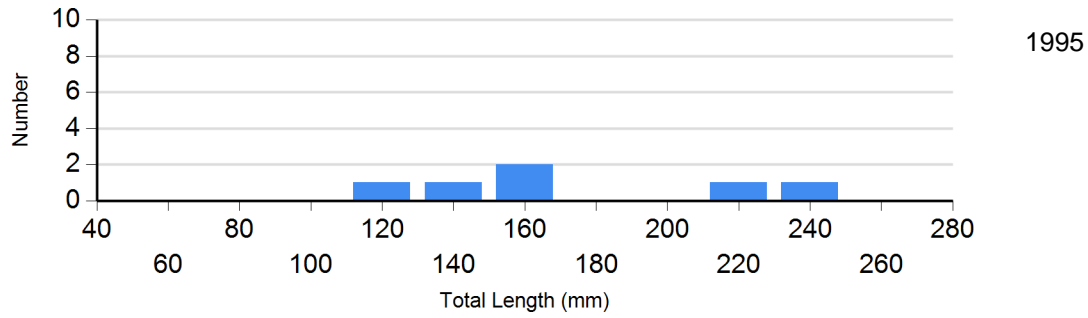
**Site:** 588  
**Species:** Hatchery Brown Trout



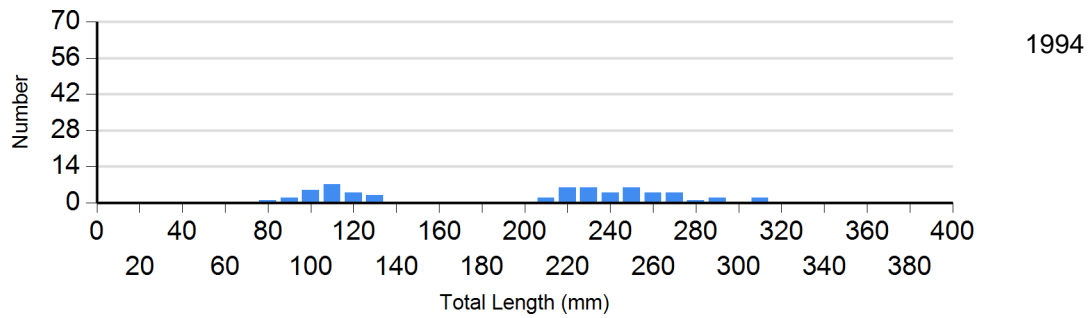
**Site: 588**  
**Species: Mountain Sucker**



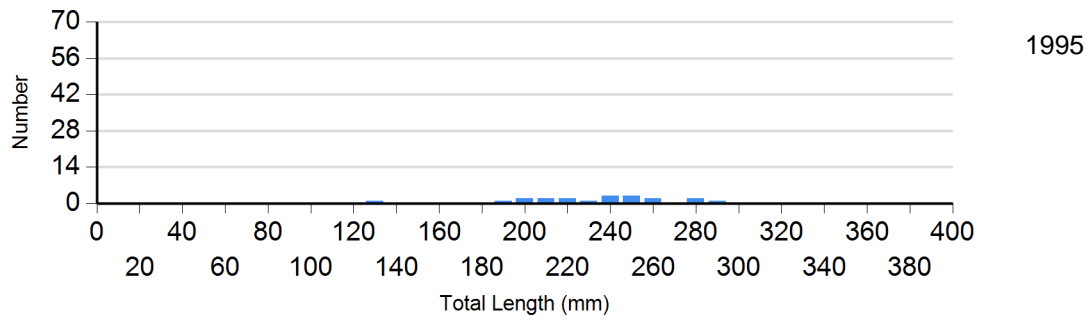
**Site: 599**  
**Species: Brook Trout**



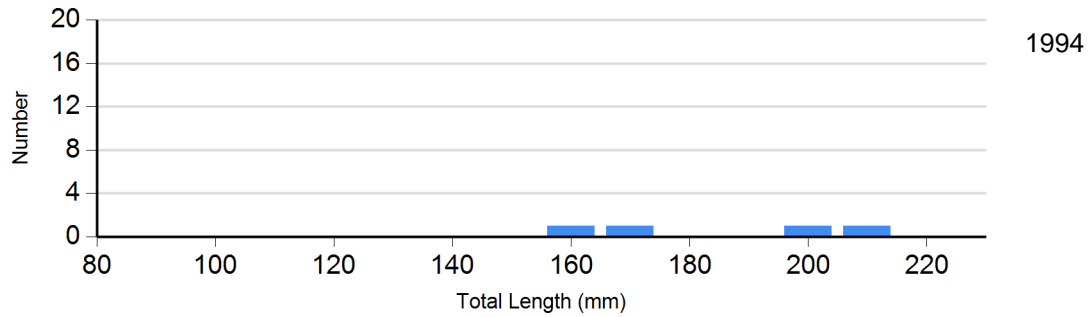
**Site: 599**  
**Species: Brown Trout**



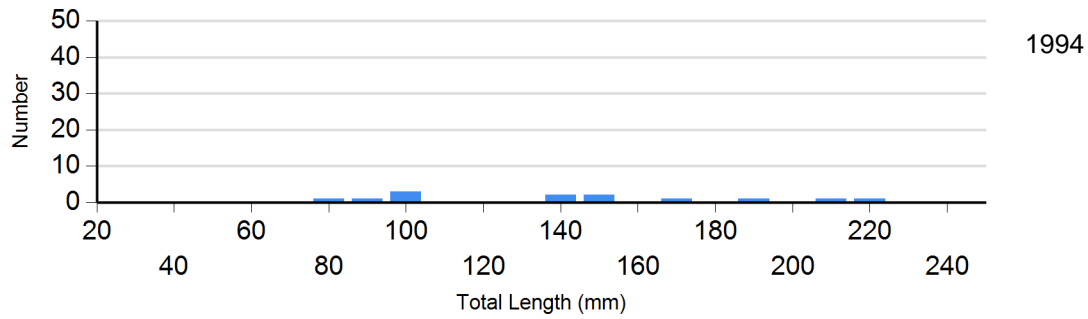


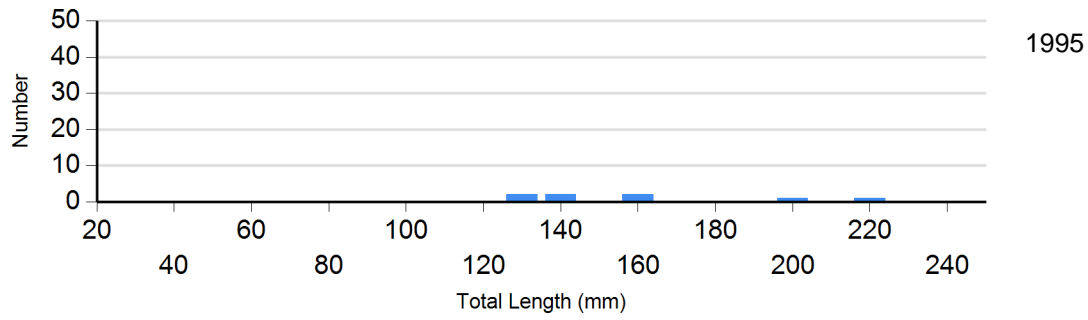


**Site:** 599  
**Species:** Mountain Sucker

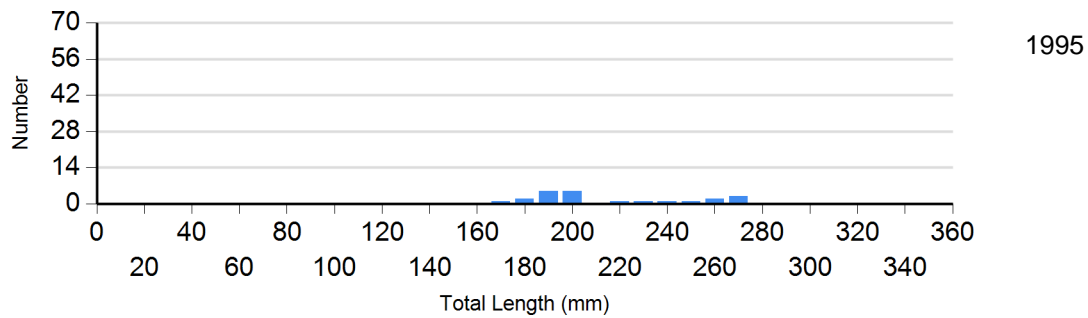
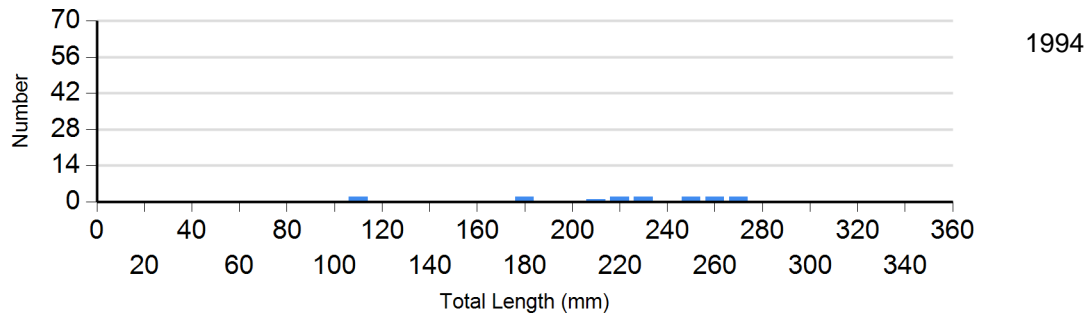
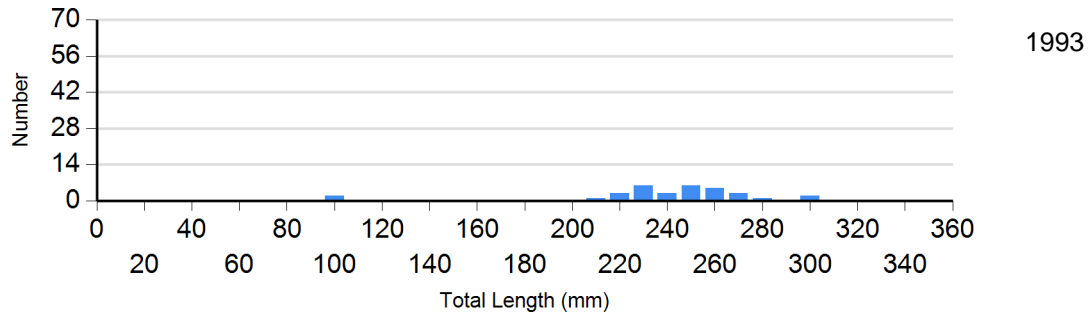


**Site:** 612  
**Species:** Brook Trout

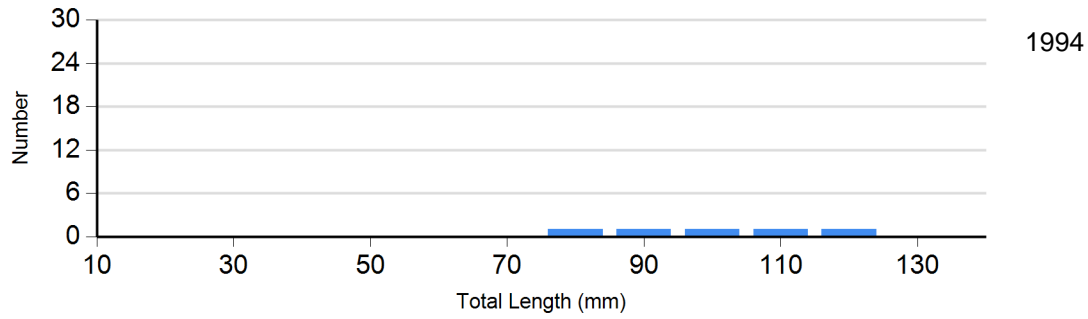




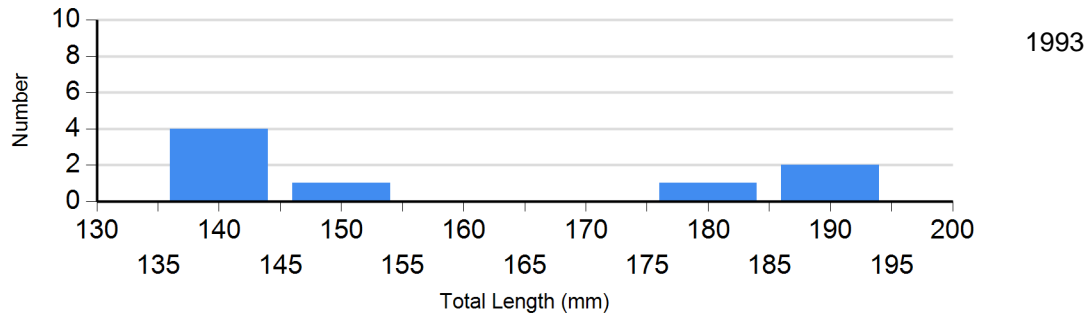
**Site:** 612  
**Species:** Brown Trout



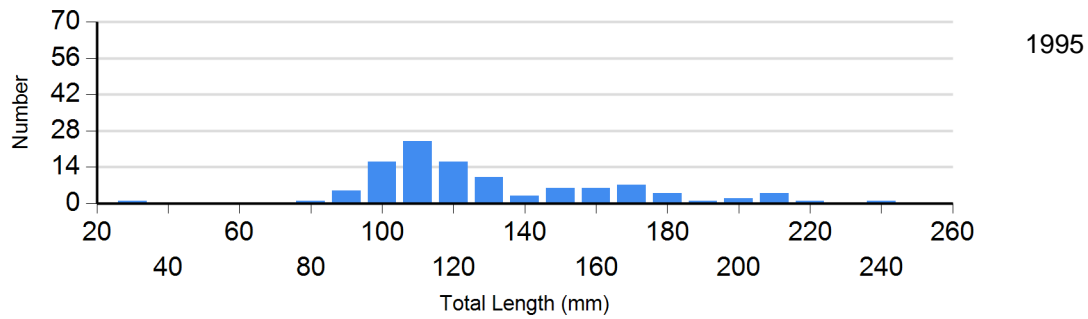
**Site:** 612  
**Species:** Longnose Dace



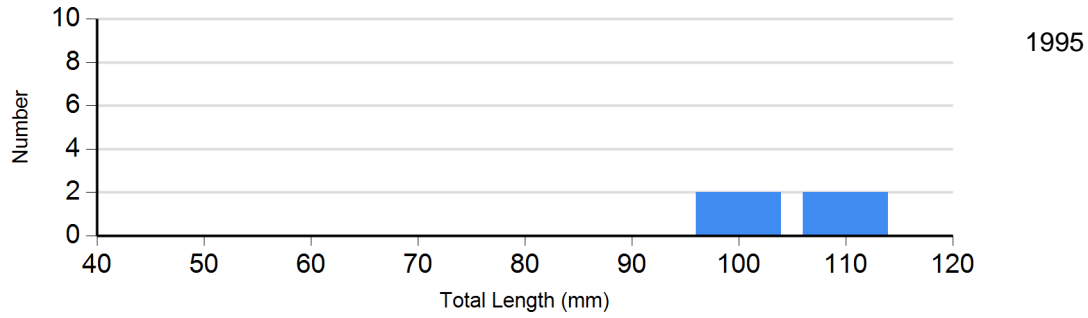
**Site:** 612  
**Species:** Mountain Sucker



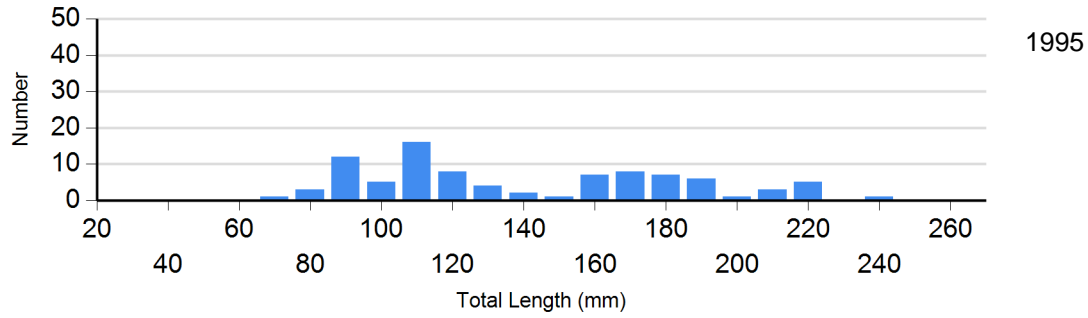
**Site:** 679  
**Species:** Brook Trout



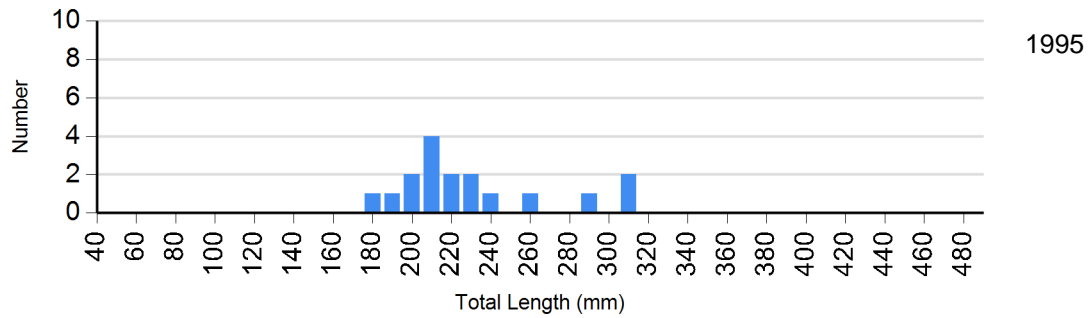
**Site:** 679  
**Species:** Longnose Dace



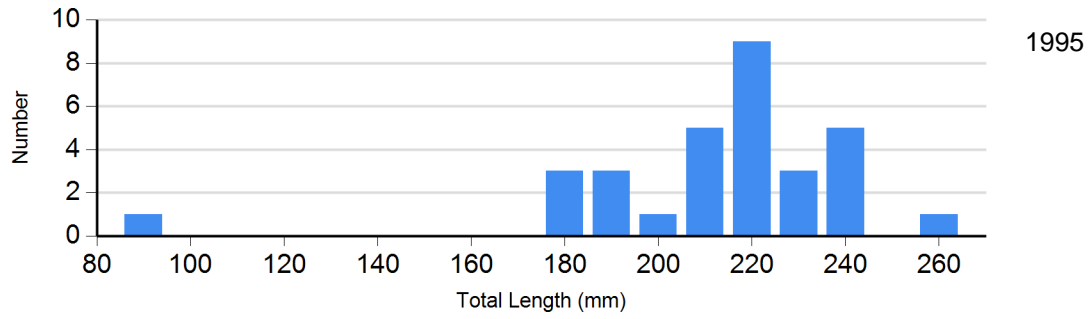
**Site:** 690  
**Species:** Brook Trout



**Site:** 690  
**Species:** Brown Trout



**Site:** 690  
**Species:** Hatchery Brown Trout



**Site:** 690  
**Species:** Longnose Dace

