

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Spring Creek (Trib. of Cheyenne), Pennington County
02-0061-00
1993

Table 1. Population and Biomass Estimates for Spring Creek (Trib. of Cheyenne)

Site Number: 1864	Date Sampled: 07/28/1993	Conductivity (umhos/cm): 205
Site Midpoint (Latitude, Longitude): 43.98424529, -103.42856922	Site Length (m): 100	pH: 8.8
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 9.9	Water Temperature (C): 16.0
Stream Classification: BR2	Number of Pass: 3	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)
Brown Trout	<200mm	11	23	82	11	231	11	230	94	9.52	370	126.6	46.1
Brown Trout	>=200mm	16	17	21	16	171	30	170	69	27.10	274	238.1	177.4
Brown Trout	All	27	35	52	27	352	44	350	143	38.96	563	192.7	123.9
Creek Chub	All	314	385	428	342	3873	57	3850	1569	51.27	6195	103.0	14.8
Hatchery Brown Trout	>=200mm	19	19	21	19	191	43	190	77	38.36	306	266.6	224.8
Hatchery Brown Trout	All	19	19	21	19	191	43	190	77	38.36	306	266.6	224.8
Longnose Dace	All	3	3	3	3	30	0	30	12	0.13	48	73.7	5.0
Rock Bass	All	4	4	4	4	40	3	40	16	2.69	64	163.3	74.8
White Sucker	All	7	7	8	7	70	14	70	29	12.79	113	224.0	203.4

Site Number: 1900	Date Sampled: 09/02/1993	Conductivity (umhos/cm): 210
Site Midpoint (Latitude, Longitude): 43.97545209, -103.44554934	Site Length (m): 100	pH: 9.1
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 8.5	Water Temperature (C): 17.0
Stream Classification: BR2	Number of Pass: 3	Voltage: 450

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	2	2	2	2	24	0	20	10	0.38	32	121.5	18.0
Brown Trout	>=200mm	9	9	9	9	106	24	90	43	21.23	145	268.3	224.6
Brown Trout	All	11	11	11	11	129	24	110	52	21.61	177	241.6	187.0
Creek Chub	All	241	373	475	271	4388	50	3730	1777	44.49	6002	96.3	11.4
Green Sunfish	All	1	1	5	1	12	0	10	5	0.20	16	102.0	19.0
Hatchery Rainbow Trout	<200mm	1	1	2	1	12	1	10	5	0.88	16	193.0	84.0
Hatchery Rainbow Trout	>=200mm	9	9	10	9	106	14	90	43	12.73	145	226.3	134.7
Hatchery Rainbow Trout	All	10	10	12	10	118	15	100	48	13.61	161	223.0	129.6
Northern Pike	All	1	1	1	1	12	2	10	5	1.89	16	300.0	180.0
Rock Bass	All	11	23	82	11	271	20	230	110	17.48	370	149.7	72.4
White Sucker	All	8	8	10	8	94	36	80	38	31.78	129	320.8	378.1
Yellow Perch	All	6	6	7	6	71	4	60	29	3.45	97	160.2	54.7

Site Number: 1994
Site Midpoint (Latitude, Longitude): 43.94382220, -103.51348180
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK0

Date Sampled: 09/02/1993
Site Length (m): 100
Mean Width (m): 5.0
Number of Pass: 3
Conductivity (umhos/cm): 243
pH: 9.0
Water Temperature (C): 13.0
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	1	1	1	1	20	1	10	8	1.24	16	191.0	70.0
Brook Trout	All	1	1	1	1	20	1	10	8	1.24	16	191.0	70.0
Creek Chub	All	20	24	34	20	476	8	240	193	6.72	386	110.1	15.8
Fathead Minnow	All	2	1	2	2	20	0	10	8	0.02	16	38.0	1.0

Hatchery Brown Trout	>=200mm	12	12	12	12	238	36	120	96	32.15	193	245.9	151.3
Hatchery Brown Trout	All	12	12	12	12	238	36	120	96	32.15	193	245.9	151.3
Hatchery Rainbow Trout	<200mm	15	15	17	15	298	18	150	121	15.98	241	181.1	60.1
Hatchery Rainbow Trout	>=200mm	2	2	2	2	40	9	20	16	8.29	32	269.5	234.0
Hatchery Rainbow Trout	All	17	17	19	17	337	27	170	137	24.27	274	191.5	80.6
Longnose Dace	All	359	513	605	421	10179	32	5130	4122	28.32	8254	70.5	3.1
Mountain Sucker	All	25	25	27	25	496	20	250	201	17.49	402	140.0	39.5
Rock Bass	All	1	1	1	1	20	3	10	8	2.44	16	185.0	138.0
White Sucker	All	137	139	143	137	2758	225	1390	1117	200.61	2237	168.7	81.5

Site Number: 2068

Site Midpoint (Latitude, Longitude): 43.93683618, -103.56043622

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK3, BR0

Date Sampled: 07/28/1993

Site Length (m): 100

Mean Width (m): 5.1

Number of Pass: 3

Conductivity (umhos/cm): 209

pH: 8.6

Water Temperature (C): 13.0

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	19	22	30	19	428	12	220	173	10.84	354	119.4	28.4
Brook Trout	>=200mm	3	3	4	3	58	7	30	24	6.48	48	219.7	124.3
Brook Trout	All	22	26	36	22	506	22	260	205	19.31	418	133.1	42.8
Brown Trout	<200mm	1	1	2	1	19	1	10	8	1.18	16	185.0	68.0
Brown Trout	All	1	1	2	1	19	1	10	8	1.18	16	185.0	68.0
Hatchery Brown Trout	>=200mm	15	15	16	15	292	43	150	118	38.36	241	244.3	147.2
Hatchery Brown Trout	All	15	15	16	15	292	43	150	118	38.36	241	244.3	147.2

Hatchery Rainbow Trout	>=200mm	6	6	7	6	117	16	60	47	13.97	97	245.0	134.0
Hatchery Rainbow Trout	All	6	6	7	6	117	16	60	47	13.97	97	245.0	134.0
Longnose Dace	All	37	61	112	37	1187	4	610	481	3.77	981	66.9	3.6
Mountain Sucker	All	28	28	30	28	545	23	280	221	20.29	451	149.8	41.7
White Sucker	All	65	74	87	65	1440	159	740	583	142.17	1191	210.3	110.6

Site Number: 2259
Site Midpoint (Latitude, Longitude): 43.86330374, -103.62719243
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK3

Date Sampled: 06/14/1993
Site Length (m): 100
Mean Width (m): 2.0
Number of Pass: 5
Conductivity (umhos/cm): 201
pH: 8.6
Water Temperature (C): 11.0
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	29	34	44	29	1700	45	340	689	40.51	547	133.9	26.7
Brook Trout	>=200mm	1	1	1	1	50	7	10	20	6.47	16	244.0	145.0
Brook Trout	All	30	34	43	30	1700	52	340	689	46.50	547	137.6	30.6
Fathead Minnow	All	1	1	1	1	50	0	10	20	0.27	16	78.0	6.0
Hatchery Brown Trout	>=200mm	7	7	7	7	350	50	70	142	44.47	113	236.7	142.3
Hatchery Brown Trout	All	7	7	7	7	350	50	70	142	44.47	113	236.7	142.3
Longnose Dace	All	14	15	19	14	750	4	150	304	3.54	241	82.6	5.3

Site Number: 2304
Site Midpoint (Latitude, Longitude): 43.86716907, -103.65862030
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK3, BR0

Date Sampled: 06/15/1993
Site Length (m): 100
Mean Width (m): 3.8
Number of Pass: 3
Conductivity (umhos/cm): 222
pH: 8.6
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	87	114	146	87	3016	60	1140	1221	53.33	1834	122.6	19.8
Brook Trout	>=200mm	1	1	2	1	26	2	10	11	2.13	16	214.0	90.0
Brook Trout	All	88	116	149	88	3069	63	1160	1243	56.45	1866	123.6	20.6
Brown Trout	<200mm	1	1	1	1	26	1	10	11	0.83	16	155.0	35.0
Brown Trout	All	1	1	1	1	26	1	10	11	0.83	16	155.0	35.0
Hatchery Brown Trout	>=200mm	7	7	8	7	185	25	70	75	22.09	113	234.9	133.6
Hatchery Brown Trout	All	7	7	8	7	185	25	70	75	22.09	113	234.9	133.6
Longnose Dace	All	3	3	3	3	79	1	30	32	0.59	48	95.7	8.3

Site Number: 2439

Site Midpoint (Latitude, Longitude): 43.90537261, -103.74603404

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2

Date Sampled: 06/15/1993

Site Length (m): 100

Mean Width (m): 0.8

Number of Pass: 3

Conductivity (umhos/cm): 348

pH: 8.9

Water Temperature (C): 11.0

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)
Brook Trout	<200mm	31	32	35	31	3902	78	320	1580	69.58	515	115.6	20.0
Brook Trout	>=200mm	1	1	1	1	122	11	10	49	9.91	16	210.0	91.0
Brook Trout	All	32	33	36	32	4024	89	330	1630	79.73	531	118.6	22.2
Mountain Sucker	All	1	1	1	1	122	6	10	49	5.66	16	173.0	52.0

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 Spring Creek (Trib. of Cheyenne), 1983-1993

Site 1864

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jul 28, 1993	23	11-82	
Brown Trout >=200mm	Jul 28, 1993	17	16-21	BR2
Creek Chub	Jul 28, 1993	385	342-428	
Hatchery Brown Trout >=200mm	Jul 28, 1993	19	19-21	
Longnose Dace	Jul 28, 1993	3	3-3	
Rock Bass	Jul 28, 1993	4	4-4	
White Sucker	Jul 28, 1993	7	7-8	

Site 1900

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Sep 02, 1993	2	2-2	
Brown Trout >=200mm	Sep 02, 1993	9	9-9	BR2
Creek Chub	Sep 02, 1993	373	271-475	
Green Sunfish	Sep 02, 1993	1	1-5	
Hatchery Rainbow Trout <200mm	Sep 02, 1993	1	1-2	
Hatchery Rainbow Trout >=200mm	Sep 02, 1993	9	9-10	
Northern Pike	Sep 02, 1993	1	1-1	
Rock Bass	Sep 02, 1993	23	11-82	
White Sucker	Sep 02, 1993	8	8-10	
Yellow Perch	Sep 02, 1993	6	6-7	

Site 1994

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 02, 1993	1	1-1	
Creek Chub	Sep 02, 1993	24	20-34	
Fathead Minnow	Sep 02, 1993	1	2-2	

Hatchery Brown Trout ≥200mm	Sep 02, 1993	12	12-12
Hatchery Rainbow Trout <200mm	Sep 02, 1993	15	15-17
Hatchery Rainbow Trout ≥200mm	Sep 02, 1993	2	2-2
Longnose Dace	Sep 02, 1993	513	421-605
Mountain Sucker	Sep 02, 1993	25	25-27
Rock Bass	Sep 02, 1993	1	1-1
White Sucker	Sep 02, 1993	139	137-143

Site 2068

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 28, 1993	22	19-30	
Brook Trout ≥200mm	Jul 28, 1993	3	3-4	BK3
Brown Trout <200mm	Jul 28, 1993	1	1-2	
Hatchery Brown Trout ≥200mm	Jul 28, 1993	15	15-16	
Hatchery Rainbow Trout ≥200mm	Jul 28, 1993	6	6-7	
Longnose Dace	Jul 28, 1993	61	37-112	
Mountain Sucker	Jul 28, 1993	28	28-30	

White Sucker

Jul 28, 1993

74

65-87

Site 2259

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 14, 1993	34	29-44	
Brook Trout >=200mm	Jun 14, 1993	1	1-1	BK3
Fathead Minnow	Jun 14, 1993	1	1-1	
Hatchery Brown Trout >=200mm	Jun 14, 1993	7	7-7	
Longnose Dace	Jun 14, 1993	15	14-19	

Site 2304

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 15, 1993	114	87-146	
Brook Trout >=200mm	Jun 15, 1993	1	1-2	BK3
Brown Trout <200mm	Jun 15, 1993	1	1-1	
Hatchery Brown Trout >=200mm	Jun 15, 1993	7	7-8	
Longnose Dace	Jun 15, 1993	3	3-3	

Site 2439

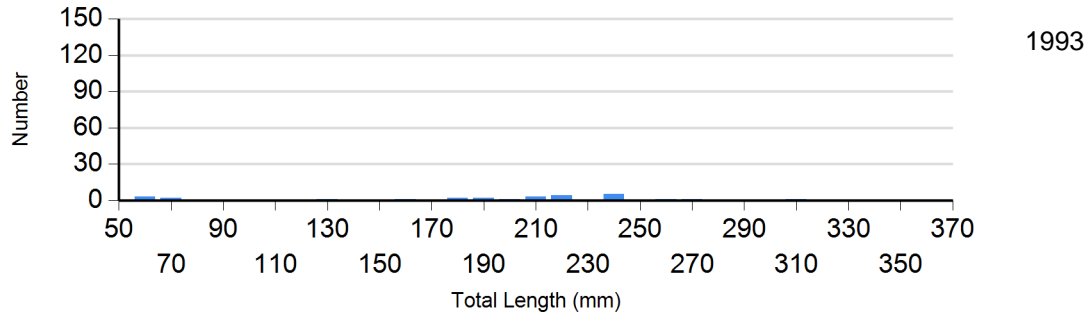
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 15, 1993	32	31-35	
Brook Trout >=200mm	Jun 15, 1993	1	1-1	BK2
Mountain Sucker	Jun 15, 1993	1	1-1	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

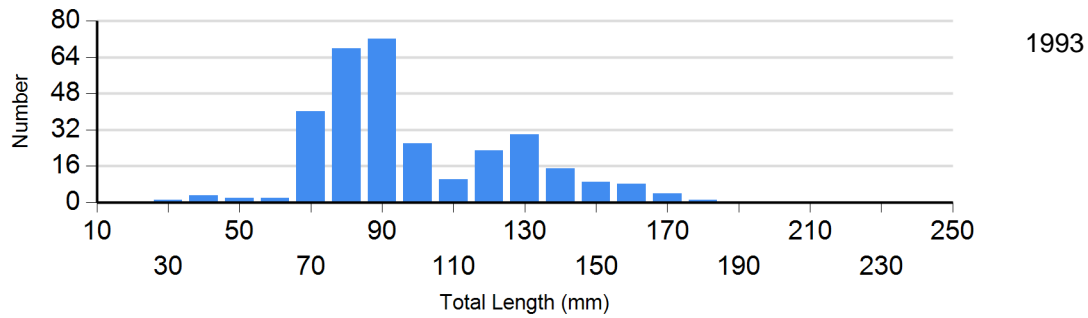
Site: 1864

Species: Brown Trout



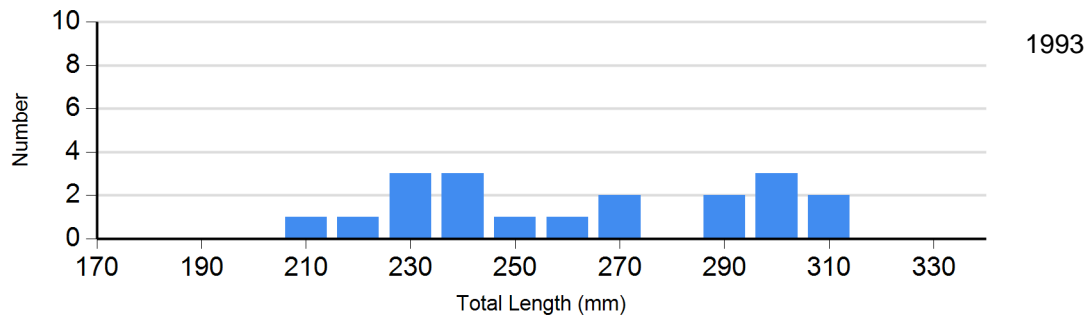
Site: 1864

Species: Creek Chub

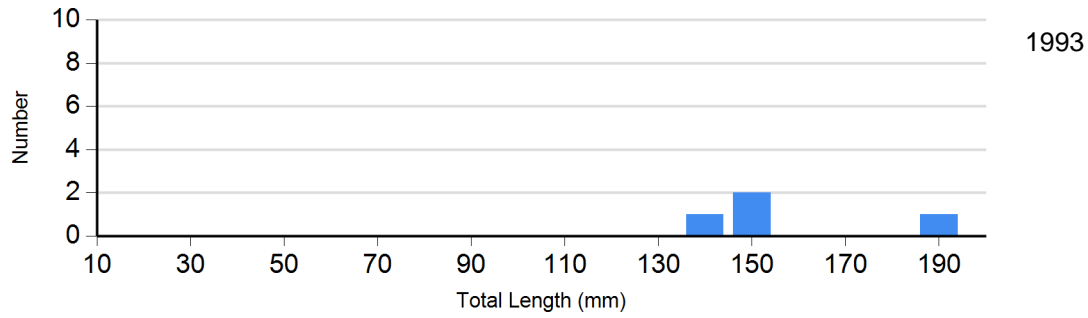


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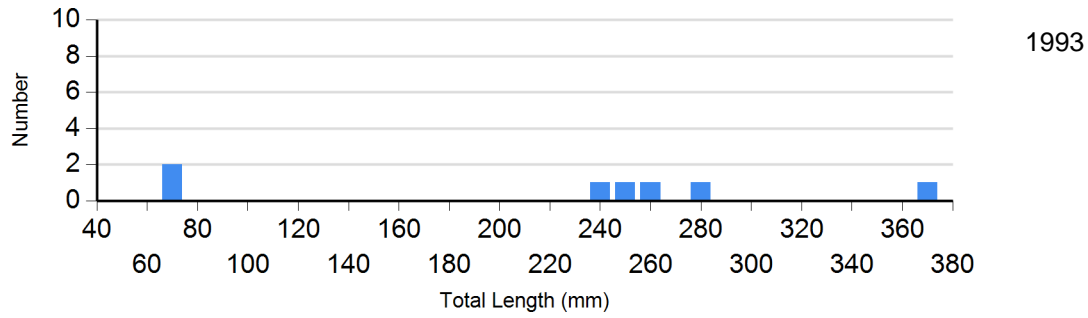
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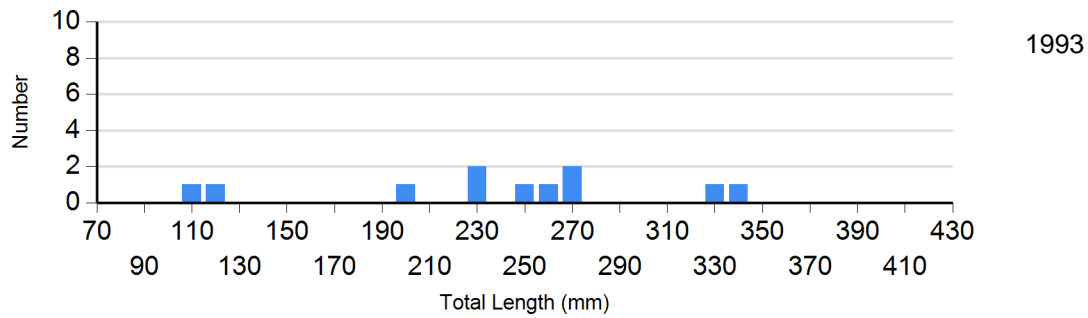
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Species: Rock Bass



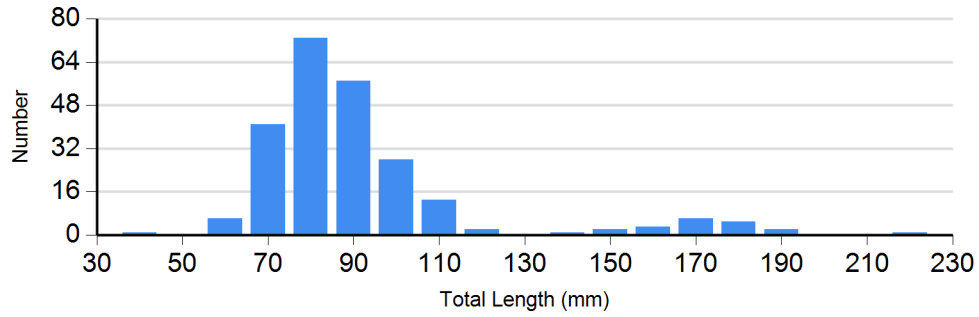
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Species: White Sucker



Site: 1900
Species: Brown Trout

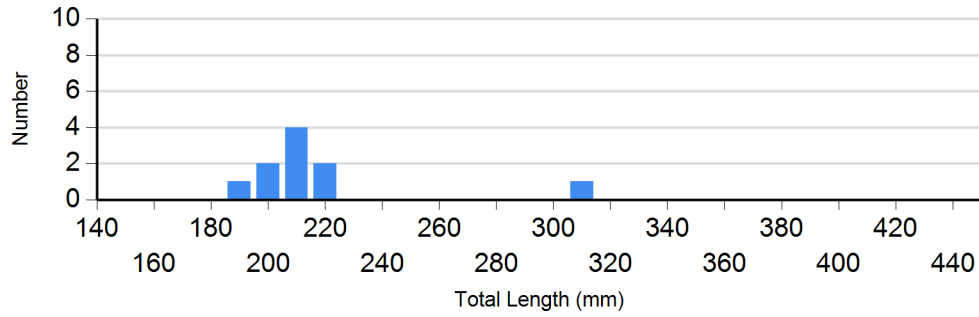


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Species: Creek Chub



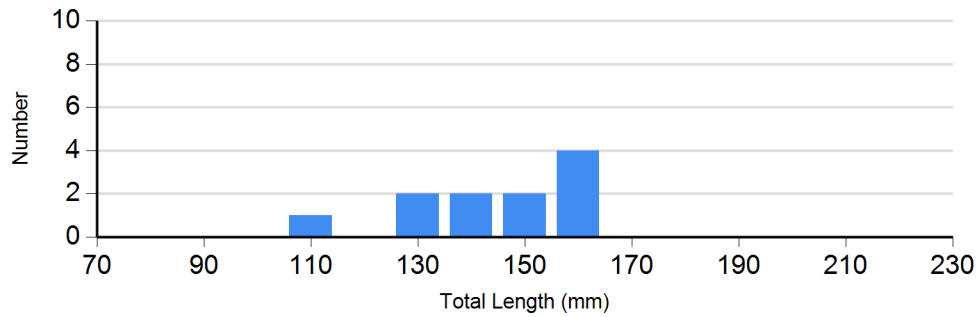
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Site: 1900
Species: Hatchery Rainbow Trout



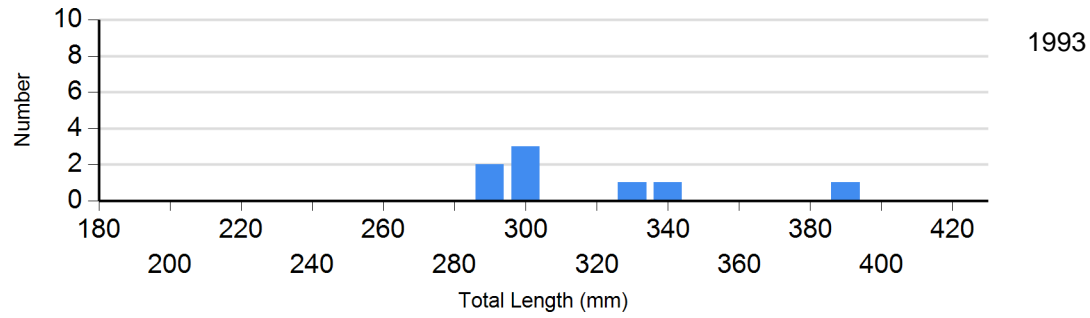
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Site: 1900
Species: Rock Bass

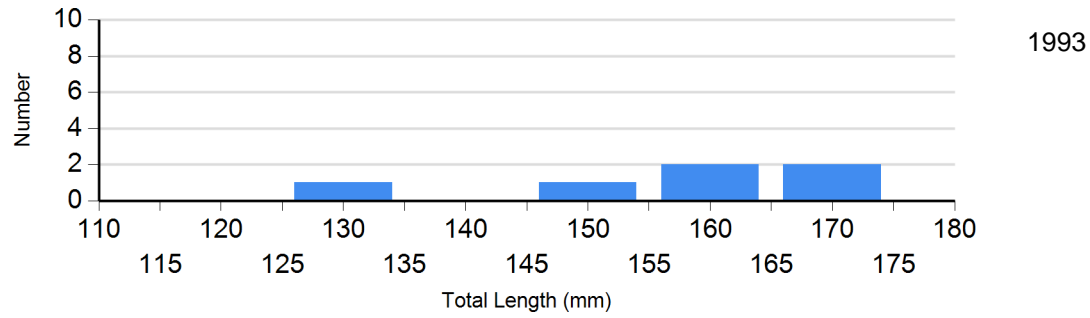


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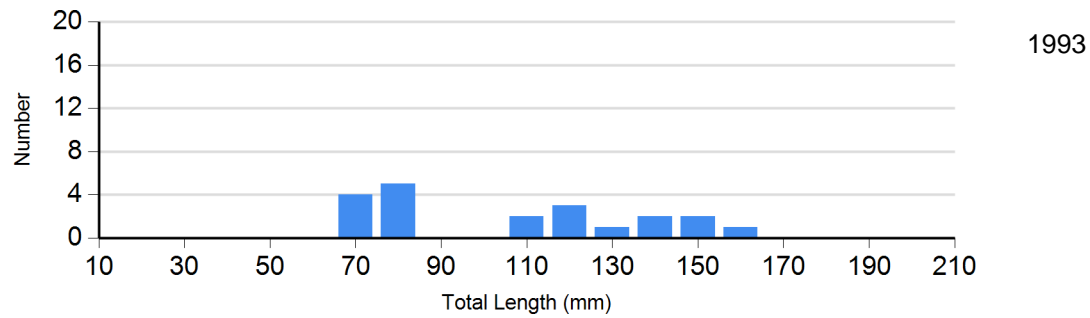
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Species: White Sucker



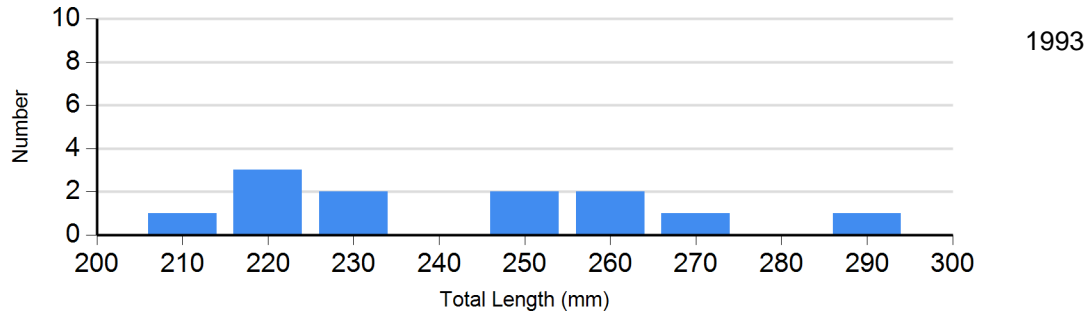
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Species: Yellow Perch



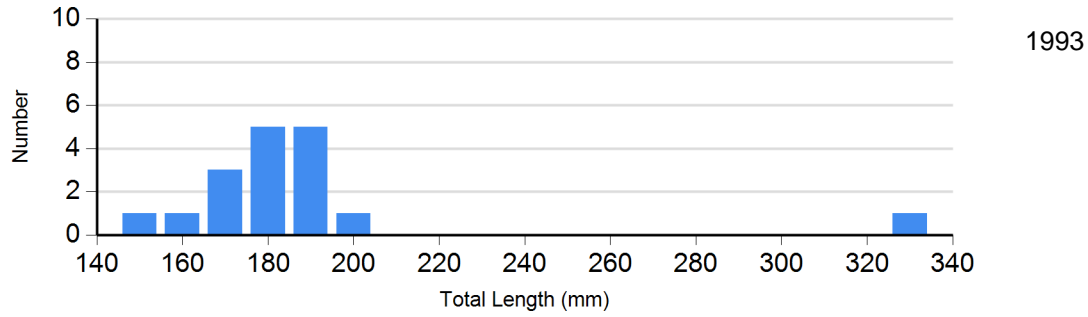
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Species: Creek Chub



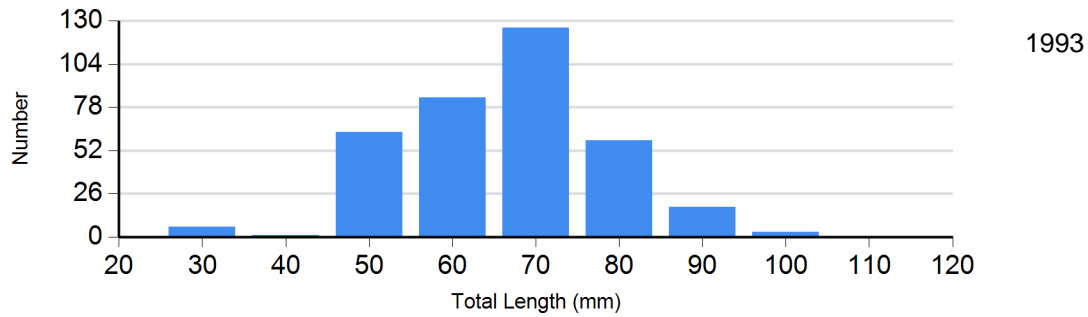
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Species: Hatchery Brown Trout



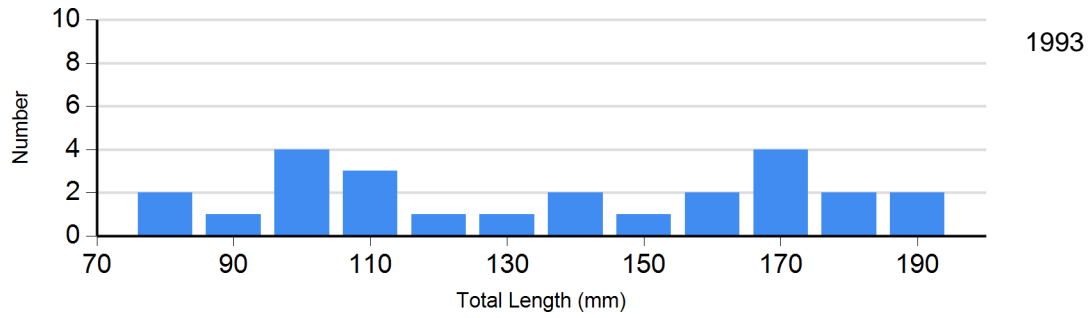
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Species: Hatchery Rainbow Trout



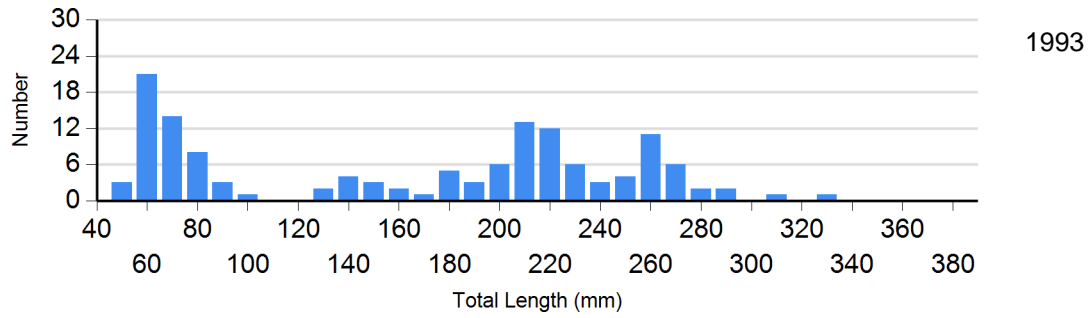
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Species: Longnose Dace



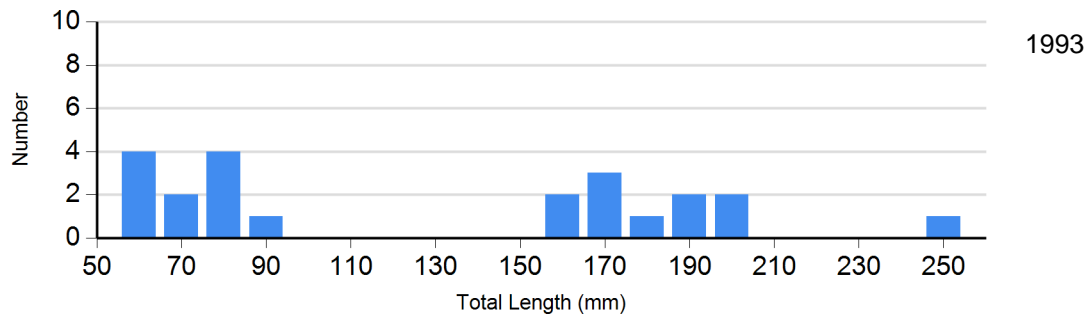
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Species: Mountain Sucker



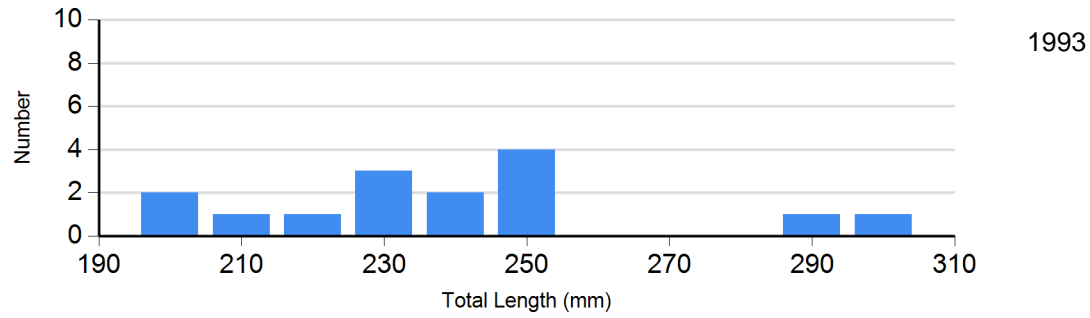
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Species: White Sucker



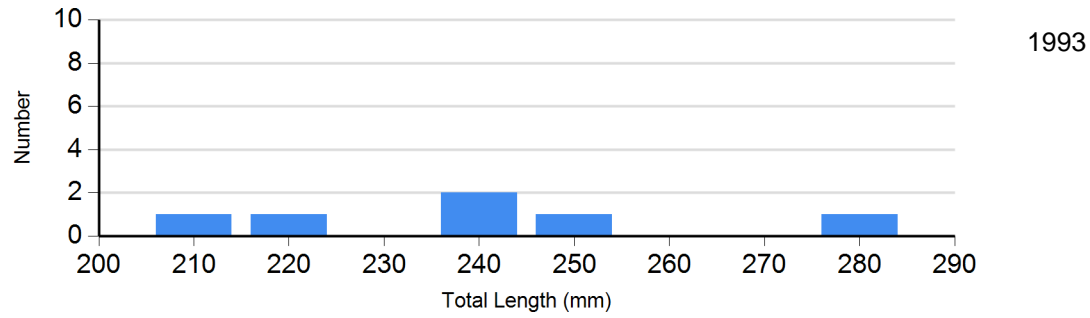
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Species: Brook Trout



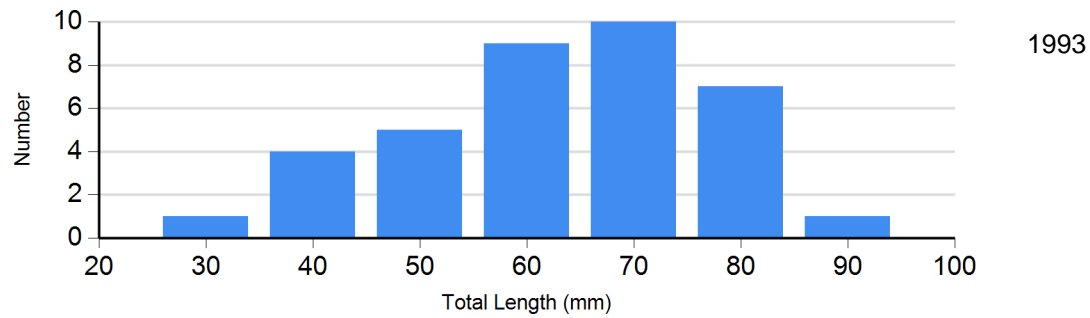
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Species: Hatchery Brown Trout



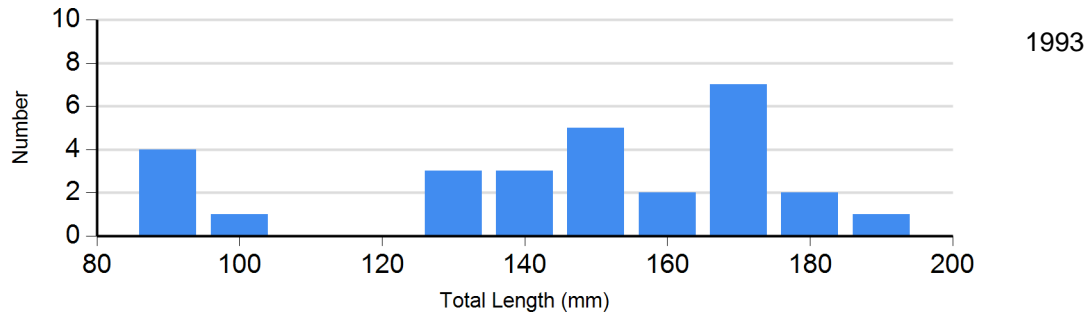
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Species: Hatchery Rainbow Trout



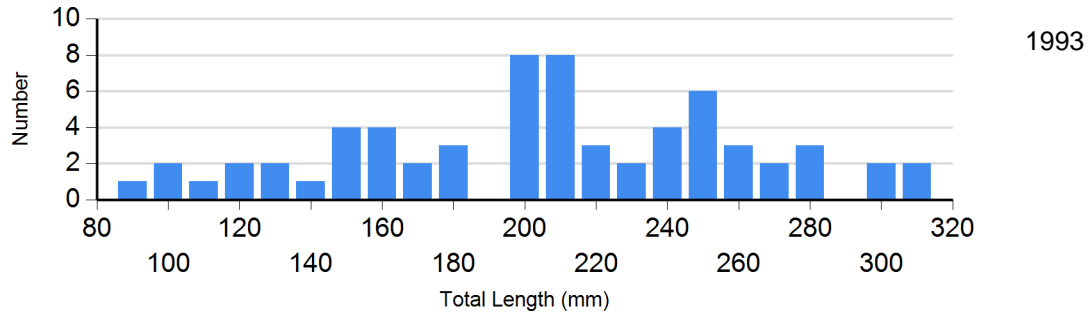
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Species: Longnose Dace



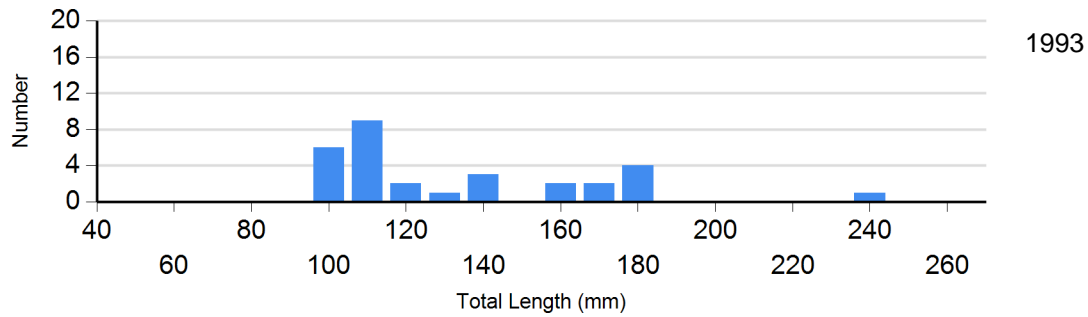
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Species: Mountain Sucker



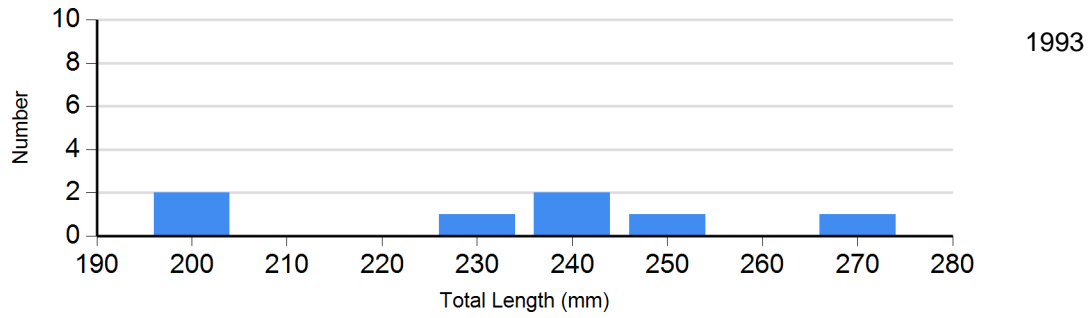
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Species: White Sucker



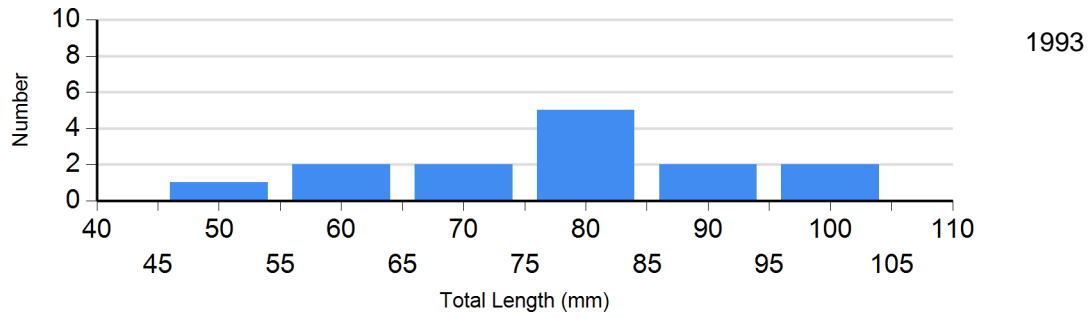
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Species: Brook Trout



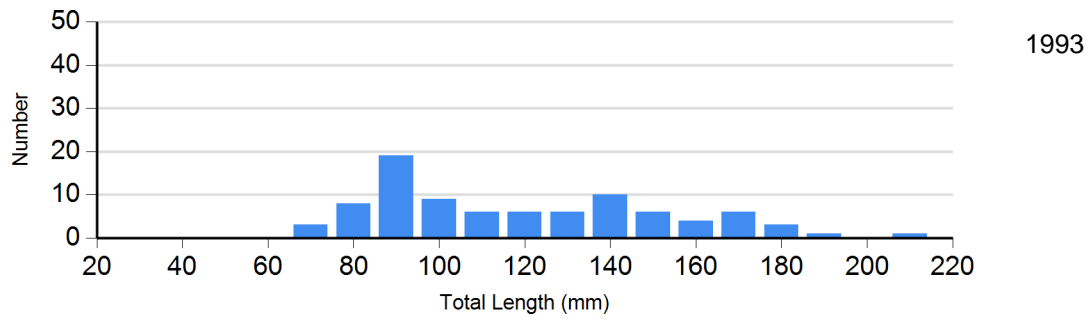
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Species: Hatchery Brown Trout



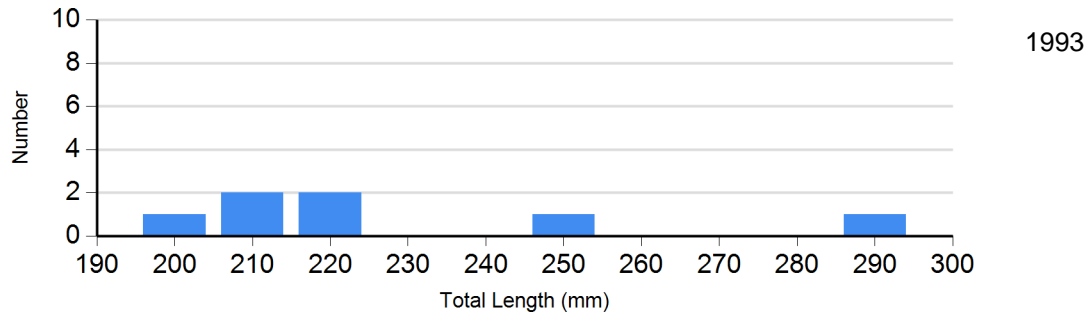
Site: 2259
Species: Longnose Dace



Site: 2304
Species: Brook Trout



Site: 2304
Species: Hatchery Brown Trout



Site: 2439
Species: Brook Trout

