

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Boxelder Creek, Pennington County
09-0065-00
1993

Table 1. Population and Biomass Estimates for Boxelder Creek

Site Number: 1983 **Date Sampled:** 07/13/1993 **Conductivity (umhos/cm):** 195
Site Midpoint (Latitude, Longitude): 44.15674459, -103.46614706 **Site Length (m):** 100 **pH:** 9.1
Survey Completed by: South Dakota Game, Fish and Parks **Mean Width (m):** 9.3 **Water Temperature (C):** 13.0
Stream Classification: BK3, 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)
Brook Trout	<200mm	37	41	49	37	441	22	410	179	19.25	660	164.8	48.9
Brook Trout	>=200mm	2	2	3	2	22	2	20	9	1.70	32	204.5	88.5
Brook Trout	All	39	43	51	39	462	24	430	187	21.02	692	166.8	50.9
Brown Trout	<200mm	22	22	24	22	237	14	220	96	12.79	354	175.5	60.5
Brown Trout	>=200mm	8	8	8	8	86	12	80	35	11.10	129	239.1	144.5
Brown Trout	All	30	30	31	30	323	27	300	131	23.89	483	192.5	82.9
Creek Chub	All	2	2	4	2	22	0	20	9	0.02	32	51.5	1.0
Fathead Minnow	All	1	1	1	1	11	0	10	4	0.04	16	62.0	4.0
Hatchery Brown Trout	>=200mm	14	14	15	14	151	20	140	61	18.12	225	235.8	134.8
Hatchery Brown Trout	All	14	14	15	14	151	20	140	61	18.12	225	235.8	134.8
Longnose Dace	All	88	110	135	88	1183	5	1100	479	4.65	1770	75.8	4.4
Mountain Sucker	All	19	19	21	19	204	8	190	83	6.70	306	146.8	36.7
Stone Cat	All	5	6	13	5	65	1	60	26	1.06	97	112.6	18.4
Unidentified YOY Trout	<200mm	4	4	4	4	43	0	40	17	0.11	64	64.8	2.8

Unidentified YOY Trout	All	4	4	4	4	43	0	40	17	0.11	64	64.8	2.8
White Sucker	All	57	59	64	57	634	36	590	257	32.13	949	148.5	56.7

Site Number: 2013

Date Sampled: 07/13/1993

Conductivity (umhos/cm): 200

Site Midpoint (Latitude, Longitude): 44.17280343, -103.48496646

Site Length (m): 100

pH: 9.1

Survey Completed by: South Dakota Game, Fish and Parks

Mean Width (m): 6.3

Water Temperature (C): 17.0

Stream Classification: BK2, BR1

Number of Pass: 3

Voltage: 400

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	14	25	67	14	394	6	250	160	5.36	402	101.4	15.2
Brook Trout	>=200mm	4	4	4	4	63	8	40	26	6.96	64	231.3	123.5
Brook Trout	All	18	21	30	18	331	13	210	134	11.62	338	130.3	39.3
Brown Trout	<200mm	20	21	25	20	331	17	210	134	15.13	338	167.2	51.2
Brown Trout	>=200mm	27	27	29	27	426	90	270	172	80.32	434	276.9	211.2
Brown Trout	All	47	49	54	47	773	111	490	313	98.75	788	230.2	143.1
Hatchery Brown Trout	>=200mm	2	2	6	2	32	5	20	13	4.63	32	253.0	164.5
Hatchery Brown Trout	All	2	2	6	2	32	5	20	13	4.63	32	253.0	164.5
Longnose Dace	All	21	22	26	21	347	1	220	141	1.03	354	70.4	3.3
Mountain Sucker	All	5	5	6	5	79	3	50	32	2.28	80	142.6	32.4
Unidentified YOY Trout	<200mm	6	6	7	6	95	0	60	38	0.15	97	59.8	1.8
Unidentified YOY Trout	All	6	6	7	6	95	0	60	38	0.15	97	59.8	1.8
White Sucker	All	55	56	59	55	883	138	560	358	123.53	901	227.2	156.6

Site Number: 2150

Site Midpoint (Latitude, Longitude): 44.22117761, -103.56090837

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK1, BR3

Date Sampled: 07/12/1993

Site Length (m): 100

Mean Width (m): 7.0

Number of Pass: 2

Conductivity (umhos/cm): 180

pH: 9.1

Water Temperature (C): 16.0

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)
Brook Trout	<200mm	148	382	778	148	5426	220	3820	2198	196.10	6146	156.9	40.5
Brook Trout	>=200mm	28	63	184	28	895	89	630	362	79.19	1014	219.7	99.1
Brook Trout	All	176	480	977	176	6818	340	4800	2761	303.52	7723	166.9	49.9
Brown Trout	<200mm	5	4	7	5	57	2	40	23	1.81	64	149.0	35.6
Brown Trout	>=200mm	5	4	7	5	57	8	40	23	7.56	64	245.8	149.0
Brown Trout	All	10	9	17	10	128	12	90	52	10.54	145	197.4	92.3
Hatchery Brown Trout	>=200mm	9	8	12	9	114	16	80	46	13.92	129	241.1	137.2
Hatchery Brown Trout	All	9	8	12	9	114	16	80	46	13.92	129	241.1	137.2
Longnose Dace	All	69	68	95	69	966	5	680	391	4.19	1094	75.4	4.9
Mountain Sucker	All	13	12	21	13	170	8	120	69	7.24	193	155.5	47.5
Unidentified YOY Trout	<200mm	71	152	319	71	2159	6	1520	874	5.59	2446	64.4	2.9
Unidentified YOY Trout	All	71	152	319	71	2159	6	1520	874	5.59	2446	64.4	2.9
White Sucker	All	20	19	32	20	270	32	190	109	28.63	306	212.9	118.8

Site Number: 2207

Site Midpoint (Latitude, Longitude): 44.22882427, -103.59960513

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2, BR2

Date Sampled: 07/12/1993

Site Length (m): 100

Mean Width (m): 3.5

Number of Pass: 4

Conductivity (umhos/cm): 157

pH: 8.9

Water Temperature (C): 13.0

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	66	70	76	66	2000	73	700	810	64.92	1126	153.6	36.4
Brook Trout	>=200mm	9	9	10	9	257	21	90	104	18.75	145	207.6	81.7
Brook Trout	All	75	79	85	75	2257	94	790	914	84.37	1271	160.1	41.9
Brown Trout	>=200mm	3	3	4	3	86	25	30	35	22.50	48	300.0	294.0
Brown Trout	All	3	3	4	3	86	25	30	35	22.50	48	300.0	294.0
Hatchery Brown Trout	>=200mm	1	1	5	1	29	4	10	12	3.32	16	248.0	130.0
Hatchery Brown Trout	All	1	1	5	1	29	4	10	12	3.32	16	248.0	130.0
Longnose Dace	All	105	137	170	105	3914	17	1370	1585	15.31	2204	73.9	4.4
Unidentified YOY Trout	<200mm	41	43	48	41	1229	4	430	498	3.24	692	70.3	3.0
Unidentified YOY Trout	All	41	43	48	41	1229	4	430	498	3.24	692	70.3	3.0
White Sucker	All	5	5	5	5	143	34	50	58	30.10	80	271.2	236.0

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 Boxelder Creek, 1983-1993

Site 1983

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 13, 1993	41	37-49	
Brook Trout >=200mm	Jul 13, 1993	2	2-3	BK3
Brown Trout <200mm	Jul 13, 1993	22	22-24	
Brown Trout >=200mm	Jul 13, 1993	8	8-8	BR2
Creek Chub	Jul 13, 1993	2	2-4	
Fathead Minnow	Jul 13, 1993	1	1-1	
Hatchery Brown Trout >=200mm	Jul 13, 1993	14	14-15	

Longnose Dace	Jul 13, 1993	110	88-135
Mountain Sucker	Jul 13, 1993	19	19-21
Stone Cat	Jul 13, 1993	6	5-13
White Sucker	Jul 13, 1993	59	57-64

Site 2013

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 13, 1993	25	14-67	
Brook Trout >=200mm	Jul 13, 1993	4	4-4	BK2
Brown Trout <200mm	Jul 13, 1993	21	20-25	
Brown Trout >=200mm	Jul 13, 1993	27	27-29	BR1
Hatchery Brown Trout >=200mm	Jul 13, 1993	2	2-6	
Longnose Dace	Jul 13, 1993	22	21-26	
Mountain Sucker	Jul 13, 1993	5	5-6	
White Sucker	Jul 13, 1993	56	55-59	

Site 2150

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 12, 1993	382	148-778	

Brook Trout >=200mm	Jul 12, 1993	63	28-184	BK1
Brown Trout <200mm	Jul 12, 1993	4	5-7	
Brown Trout >=200mm	Jul 12, 1993	4	5-7	BR3
Hatchery Brown Trout >=200mm	Jul 12, 1993	8	9-12	
Longnose Dace	Jul 12, 1993	68	69-95	
Mountain Sucker	Jul 12, 1993	12	13-21	
White Sucker	Jul 12, 1993	19	20-32	

Site 2207

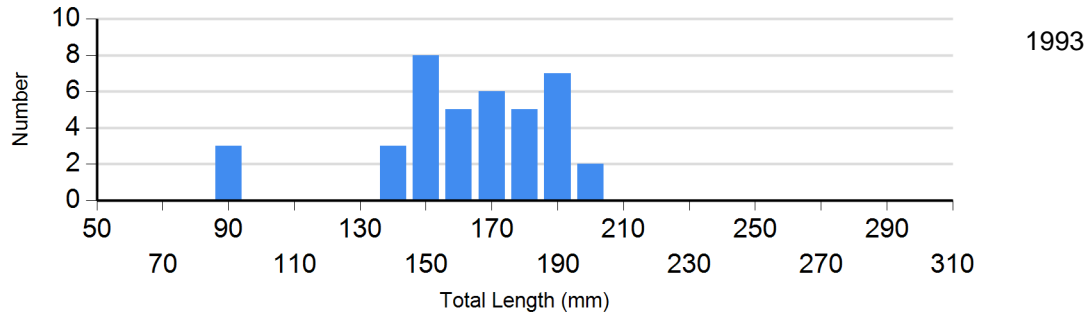
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 12, 1993	70	66-76	
Brook Trout >=200mm	Jul 12, 1993	9	9-10	BK2
Brown Trout >=200mm	Jul 12, 1993	3	3-4	BR2
Hatchery Brown Trout >=200mm	Jul 12, 1993	1	1-5	
Longnose Dace	Jul 12, 1993	137	105-170	
White Sucker	Jul 12, 1993	5	5-5	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

Site: 1983

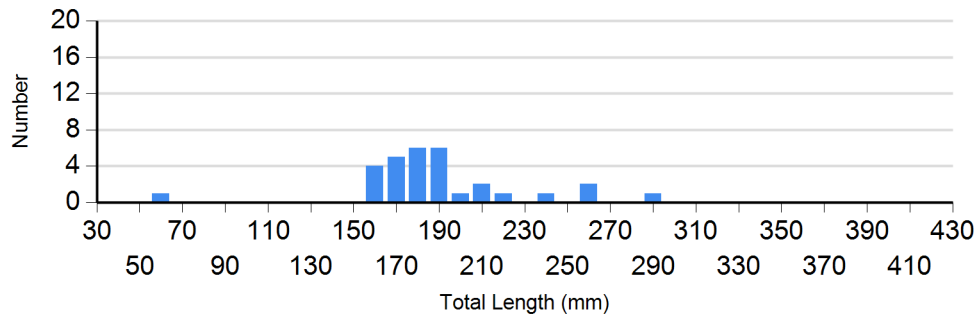
Species: Brook Trout



1993

Site: 1983

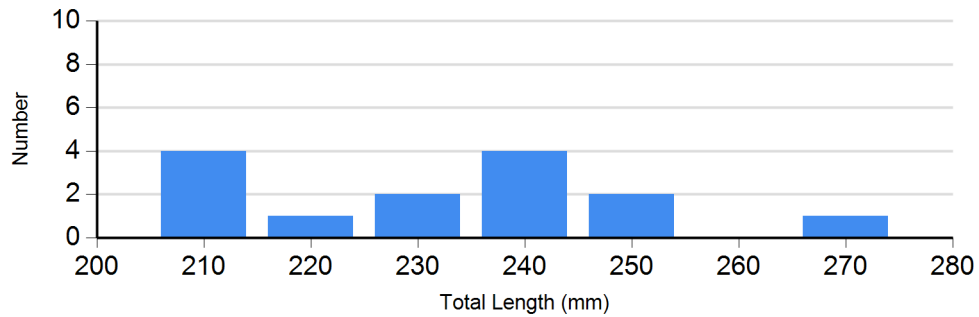
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1993

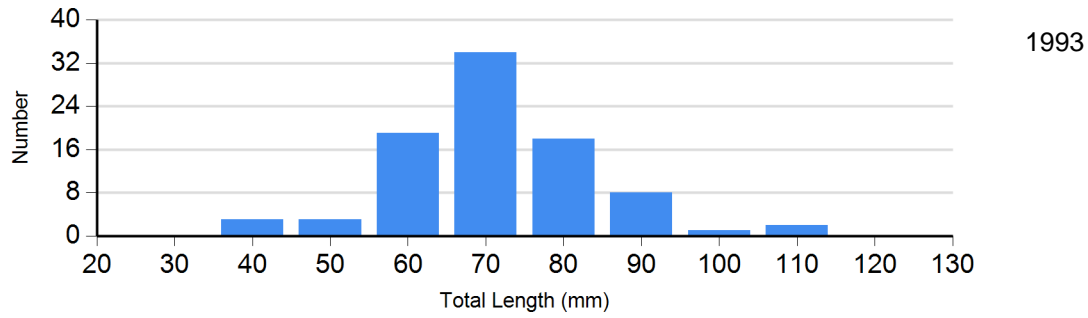
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Species: Hatchery Brown Trout

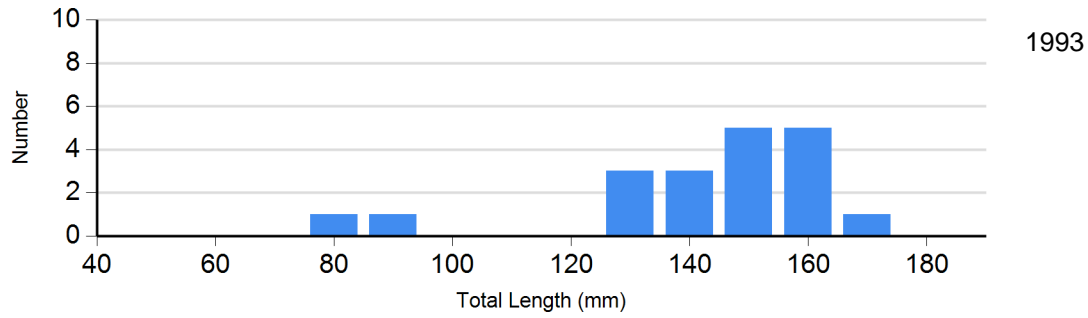


1993

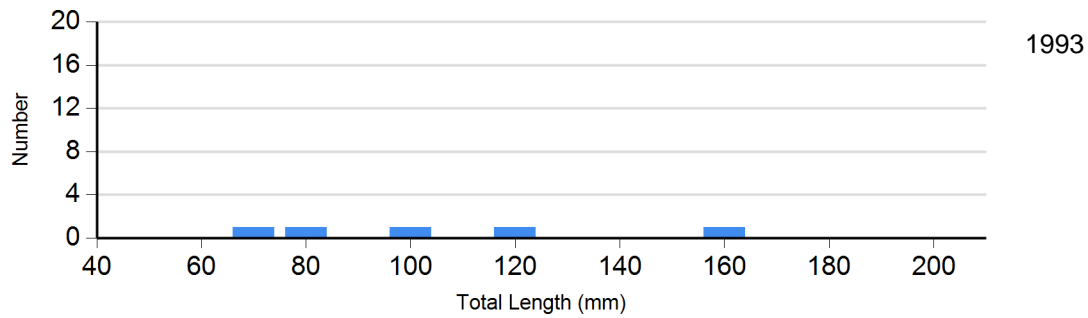
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Species: Longnose Dace



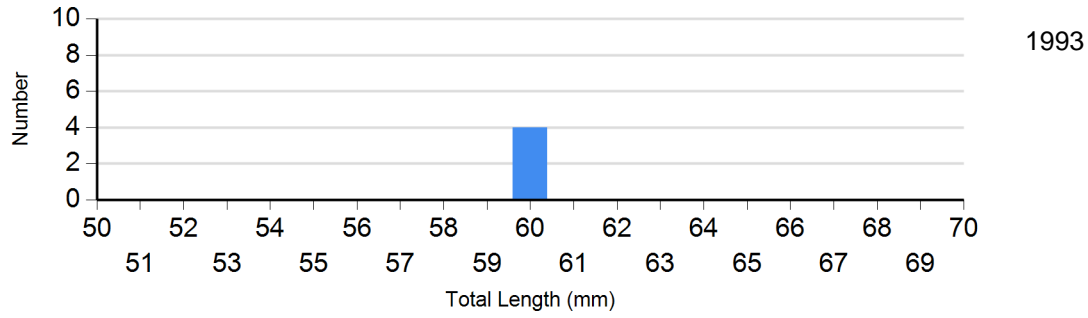
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Species: Mountain Sucker



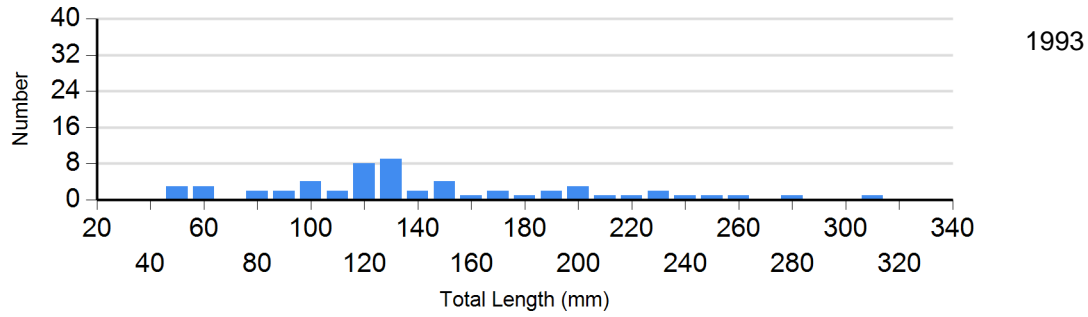
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Species: Stone Cat



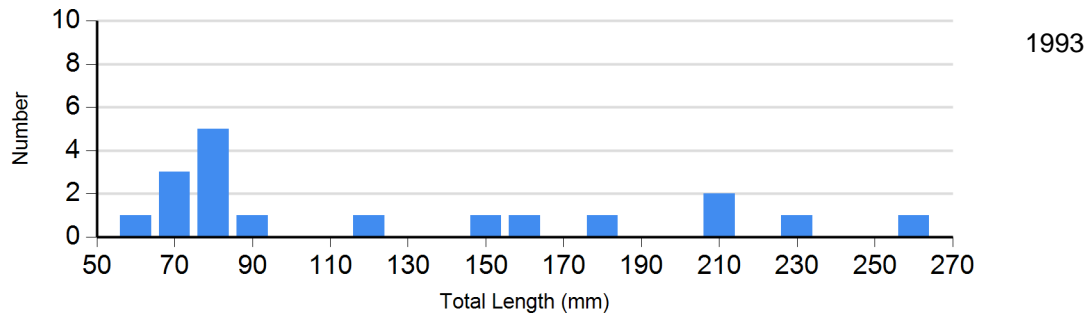
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Species: Unidentified YOY Trout



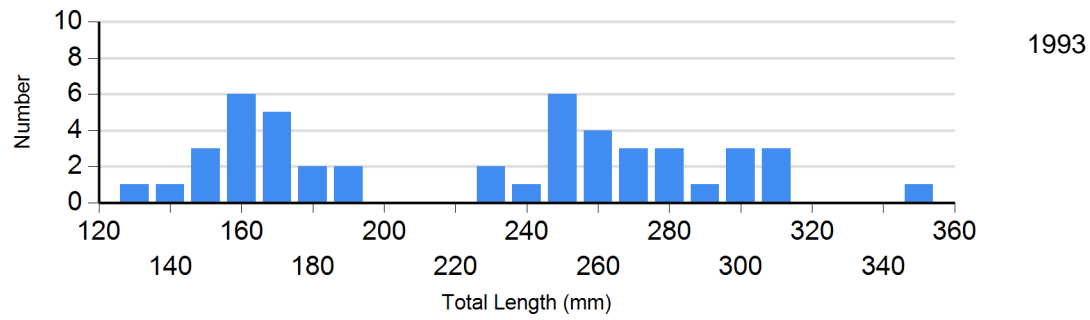
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Species: White Sucker



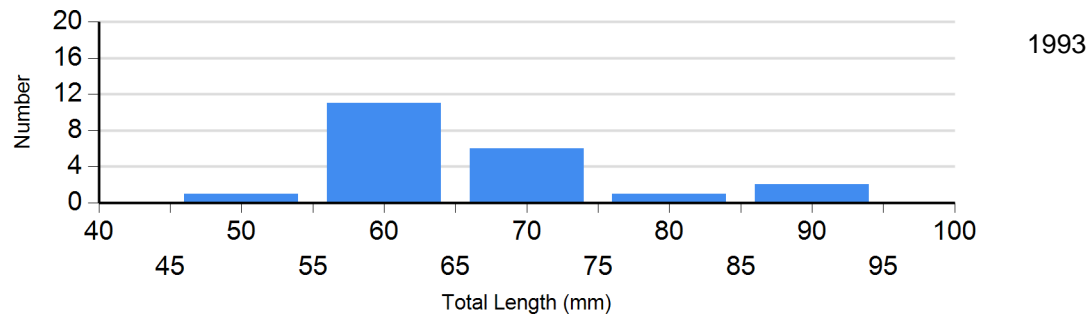
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Species: Brook Trout



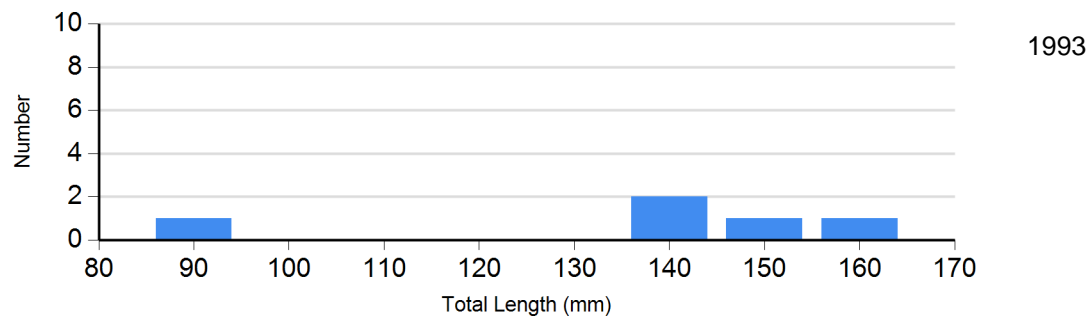
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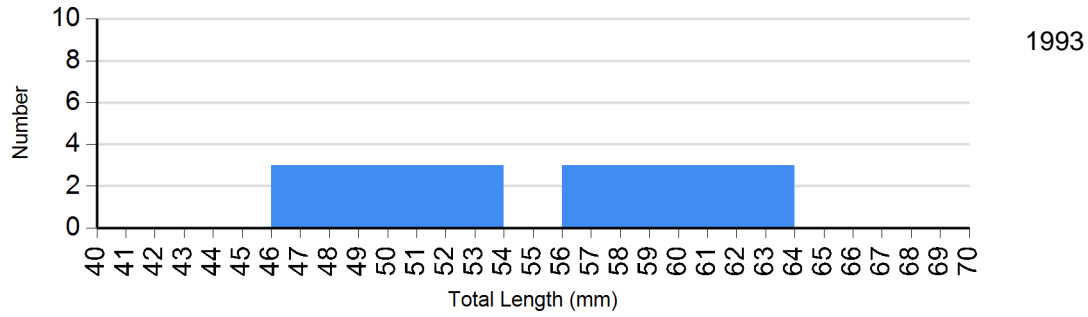
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Species: Longnose Dace



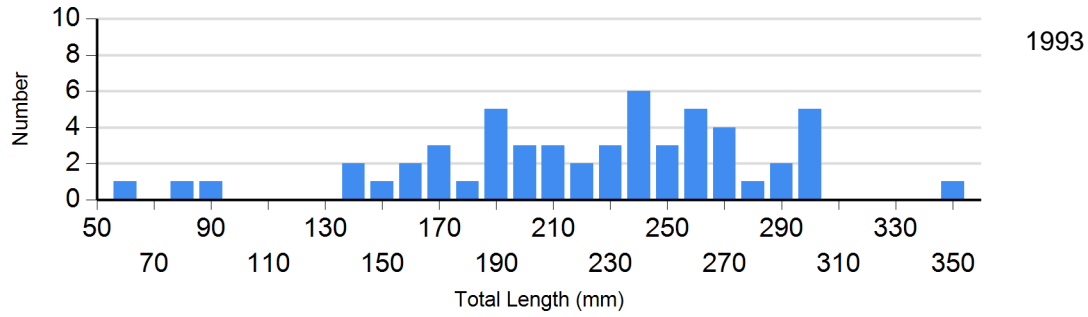
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Species: Mountain Sucker



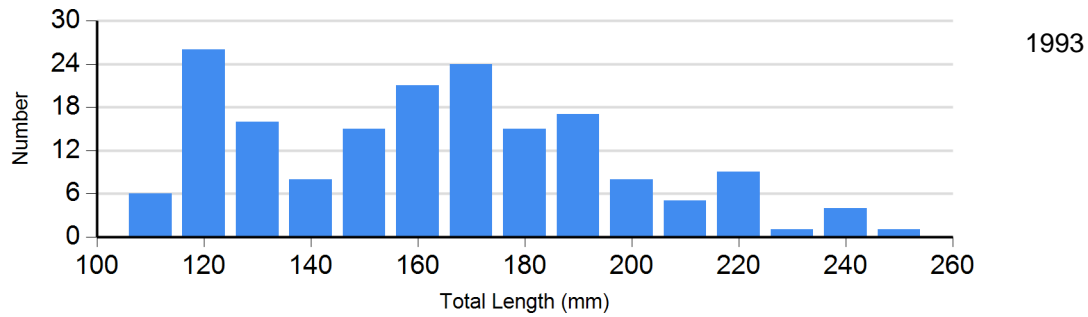
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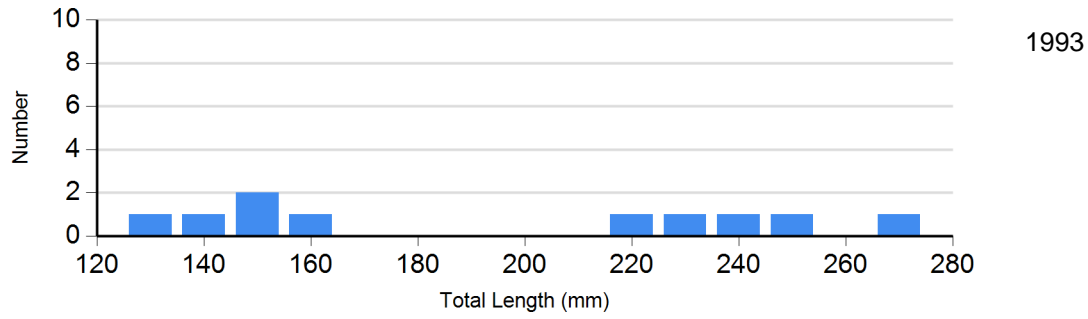
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Species: White Sucker



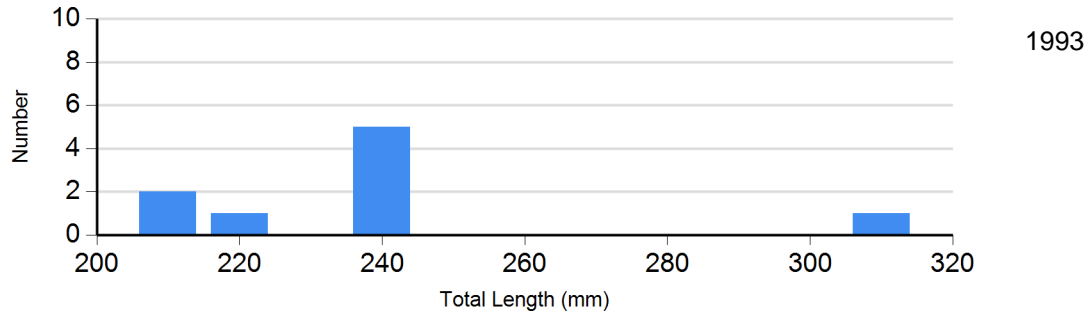
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Species: Brook Trout



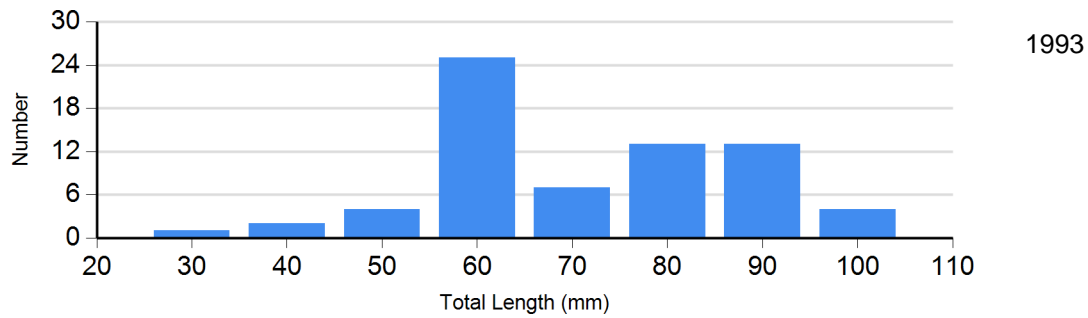
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Species: Brown Trout



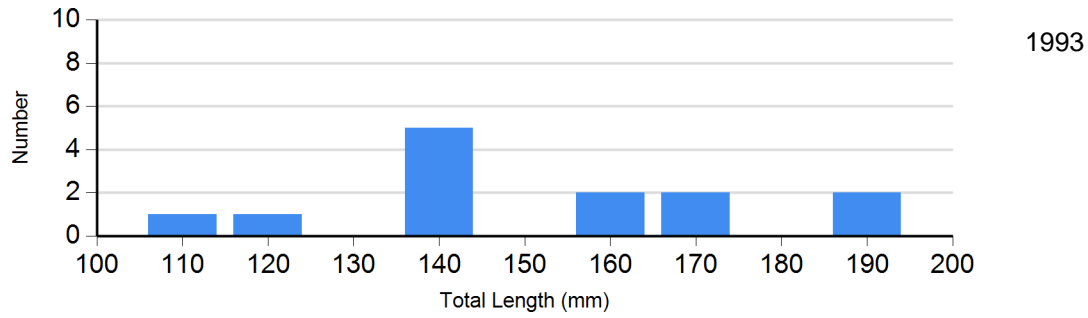
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Species: Hatchery Brown Trout



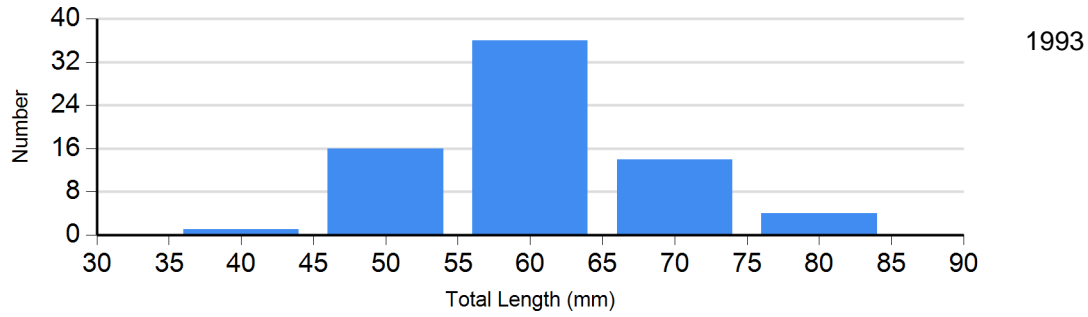
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Species: Longnose Dace



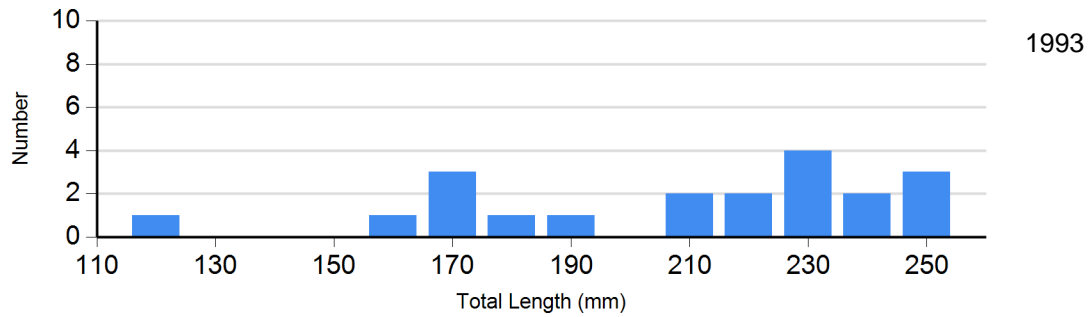
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Species: Mountain Sucker



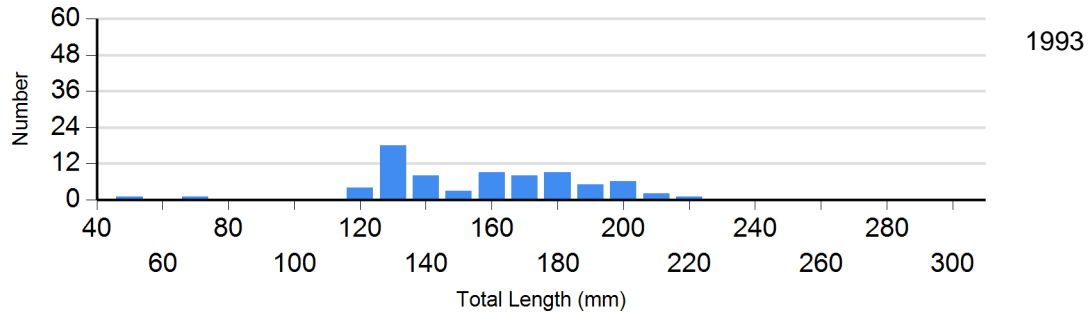
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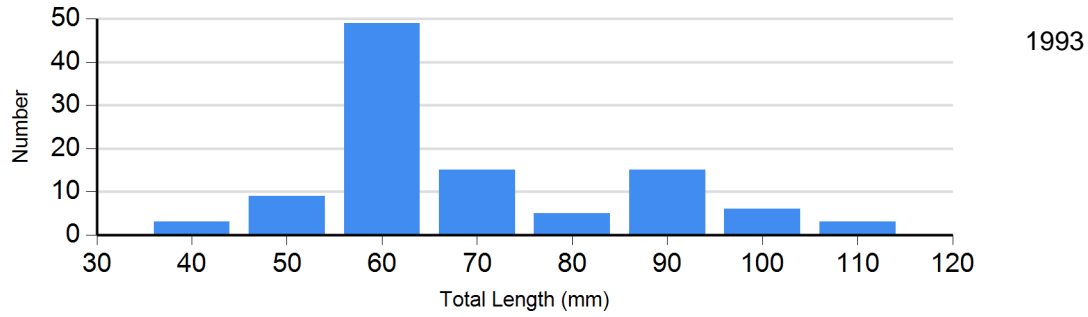
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Species: White Sucker



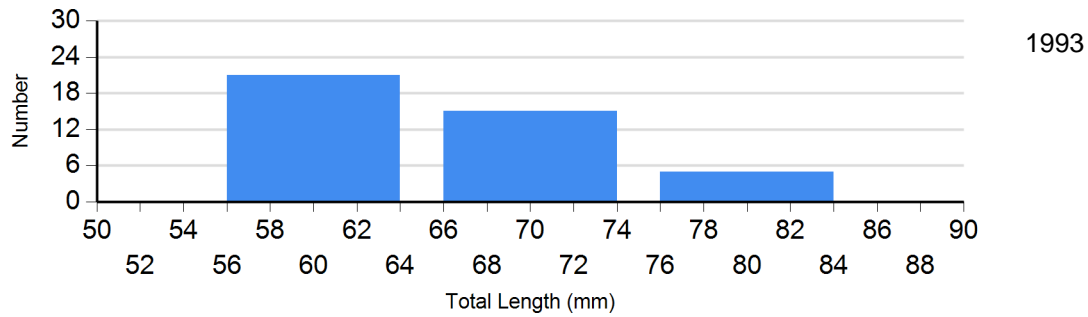
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Species: Brook Trout



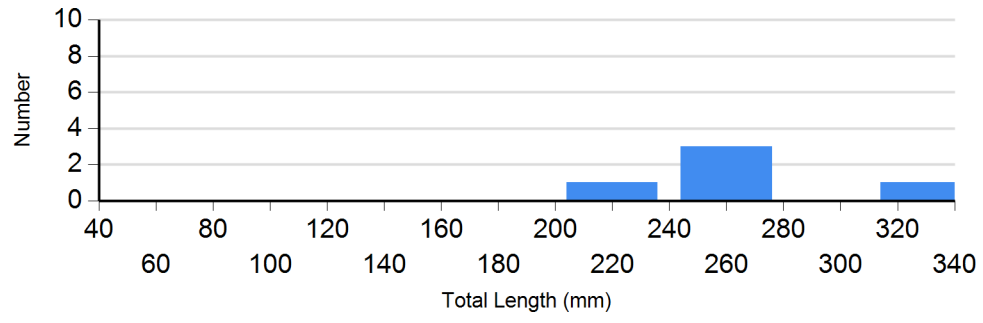
Site: 2207
Species: Longnose Dace



Site: 2207
Species: Unidentified YOY Trout



Site: 2207
Species: White Sucker



1993