

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Boxelder Creek, Pennington County**  
**09-0065-00**  
**2014**

Table 1. Population and Biomass Estimates for Boxelder Creek

**Site Number:** 1983  
**Site Midpoint (Latitude, Longitude):** 44.15674459, -103.46614706  
**Survey Completed by:**  
**Stream Classification:** BK3, BR3

**Date Sampled:** 07/31/2014  
**Site Length (m):** 100  
**Mean Width (m):** 8.7  
**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)
Brook Trout	>=200mm	2	2	2	2	23	3	20	9	2.31	32	221.0	113.0
Brook Trout	All	3	3	4	3	34	4	30	14	3.47	48	173.0	113.0
Brown Trout	<200mm	9	9	11	9	103	7	90	42	6.01	145	125.7	65.3
Brown Trout	>=200mm	5	5	5	5	57	26	50	23	23.41	80	328.8	457.6
Brown Trout	All	14	14	16	14	160	45	140	65	40.57	225	198.2	283.2
Longnose Dace	All	47	69	107	47	791	11	690	320	9.88	1110	74.0	14.0
Mountain Sucker	All	3	3	4	3	34	1	30	14	1.06	48	152.7	34.7
Stone Cat	All	7	11	32	7	126	5	110	51	4.84	177	133.3	43.0
White Sucker	All	72	75	81	72	859	34	750	348	29.95	1207	133.6	39.0

**Site Number:** 2085  
**Site Midpoint (Latitude, Longitude):** 44.19768935, -103.52345843  
**Survey Completed by:**  
**Stream Classification:** BK3, BR2

**Date Sampled:** 07/31/2014  
**Site Length (m):** 100  
**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)
Brook Trout	<200mm	5	5	6	5	78	4	50	32	3.24	80	163.8	46.4
Brook Trout	>=200mm	1	1	1	1	16	2	10	6	1.40	16	205.0	100.0
Brook Trout	All	6	6	7	6	94	5	60	38	4.64	97	170.7	55.3
Brown Trout	<200mm	18	26	49	18	407	20	260	165	18.19	418	136.9	50.1
Brown Trout	>=200mm	5	5	6	5	78	13	50	32	11.69	80	264.6	167.4
Brown Trout	All	23	29	43	23	454	38	290	184	33.49	467	164.7	82.7
Mountain Sucker	All	36	38	43	36	595	11	380	241	10.04	611	115.1	18.9
White Sucker	All	15	15	17	15	235	4	150	95	3.70	241	106.3	17.7

Site Number: 2099

Site Midpoint (Latitude, Longitude): 44.19841227, -103.53502386

Survey Completed by:

Stream Classification: BK2, BR2

Date Sampled: 08/01/2014

Site Length (m): 100

Mean Width (m): 7.4

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C):

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	31	31	33	31	419	19	310	170	16.81	499	130.5	45.0
Brook Trout	>=200mm	6	6	6	6	81	9	60	33	8.08	97	232.8	111.7
Brook Trout	All	37	37	39	37	500	30	370	203	26.69	595	147.1	59.8
Brown Trout	<200mm	49	50	53	49	676	36	500	274	31.70	805	89.6	52.5
Brown Trout	>=200mm	7	7	7	7	95	19	70	38	16.69	113	259.1	197.6
Brown Trout	All	56	56	58	56	757	82	560	306	73.61	901	110.8	108.9
Longnose Dace	All	286	285	316	286	3851	59	2850	1560	52.73	4586	78.7	15.3
Mountain Sucker	All	64	68	75	64	919	22	680	372	20.00	1094	117.7	24.4

White Sucker All 7 7 9 7 95 5 70 38 4.66 113 160.3 55.1

Site Number: 2207

Date Sampled: 07/07/2014

Conductivity  
(umhos/cm):

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

Site Length (m): 100

pH:

Survey Completed by:

Mean Width (m): 3.5

Water Temperature (C):

Stream Classification: BK2, BR0

Number of Pass: 3

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	37	41	49	37	1184	47	410	479	41.63	660	141.6	39.4
Brook Trout	>=200mm	7	7	9	7	202	26	70	82	23.20	113	226.9	128.6
Brook Trout	All	44	50	61	44	1444	81	500	585	71.94	805	155.1	55.8
Brown Trout	<200mm	1	1	5	1	29	1	10	12	1.08	16	162.0	42.0
Brown Trout	All	1	1	5	1	29	1	10	12	1.08	16	162.0	42.0
Longnose Dace	All	212	266	306	226	7680	104	2660	3110	92.57	4280	73.3	13.5
Mountain Sucker	All	11	11	12	11	318	6	110	129	5.16	177	120.1	18.2
White Sucker	All	3	3	4	3	87	8	30	35	7.35	48	192.0	95.0

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	
<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 Boxelder Creek, 2004-2014

**Site 1983**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Aug 25, 2010	21	21-21	
	Jun 20, 2012	16	13-26	
	Jun 19, 2013	1	1-5	
Brook Trout >=200mm	Aug 25, 2010	7	7-7	BK2
	Jun 20, 2012	5	5-5	BK3
	Jun 19, 2013	1	1-1	BK3
	Jul 31, 2014	2	2-2	BK3

Brown Trout <200mm	Aug 25, 2010	18	18-18	
	Jun 20, 2012	31	30-35	
	Jun 19, 2013	4	4-4	
	Jul 31, 2014	9	9-11	
Brown Trout >=200mm	Aug 25, 2010	21	21-21	BR2
	Jun 20, 2012	16	16-16	BR2
	Jun 19, 2013	13	13-14	BR2
	Jul 31, 2014	5	5-5	BR3
Creek Chub	Jun 20, 2012	1	1-2	
Longnose Dace	Jun 19, 2013	170	89-293	
	Jul 31, 2014	69	47-107	
Mountain Sucker	Aug 25, 2010	20	20-20	
	Jun 20, 2012	16	16-17	
	Jul 31, 2014	3	3-4	
Stone Cat	Aug 25, 2010	6	6-6	
	Jun 20, 2012	18	19-25	

Stone Cat	Jun 19, 2013	6	5-13
	Jul 31, 2014	11	7-32
White Sucker	Aug 25, 2010	28	28-28
	Jun 20, 2012	5	5-7
	Jun 19, 2013	102	95-111
	Jul 31, 2014	75	72-81

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**Site 2085**


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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	Jul 31, 2014	5	5-6	
Brook Trout >=200mm	Jul 31, 2014	1	1-1	BK3
Brown Trout <200mm	Jul 31, 2014	26	18-49	
Brown Trout >=200mm	Jul 31, 2014	5	5-6	BR2
Mountain Sucker	Jul 31, 2014	38	36-43	
White Sucker	Jul 31, 2014	15	15-17	

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**Site 2099**


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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	Jun 20, 2012	57	57-58	

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Brook Trout <200mm	Jun 19, 2013	47	45-51	
	Aug 01, 2014	31	31-33	
Brook Trout >=200mm	Jun 20, 2012	5	5-5	BK2
	Jun 19, 2013	5	5-5	BK2
	Aug 01, 2014	6	6-6	BK2
Brown Trout <200mm	Jun 20, 2012	63	51-81	
	Jun 19, 2013	14	11-25	
	Aug 01, 2014	50	49-53	
Brown Trout >=200mm	Jun 20, 2012	1	1-2	BR3
	Aug 01, 2014	7	7-7	BR2
Longnose Dace	Jun 19, 2013	180	146-214	
	Aug 01, 2014	285	286-316	
Mountain Sucker	Jun 20, 2012	78	49-130	
	Jun 19, 2013	20	17-29	
	Aug 01, 2014	68	64-75	
White Sucker	Jun 20, 2012	1	1-5	

White Sucker	Jun 19, 2013	1	1-1
	Aug 01, 2014	7	7-9

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**Site 2207**

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Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Aug 25, 2010	29	29-29	
	Jun 15, 2012	244	219-269	
	Jun 20, 2013	60	56-67	
	Jul 07, 2014	41	37-49	
Brook Trout >=200mm	Aug 25, 2010	9	9-9	BK2
	Jun 15, 2012	16	13-26	BK1
	Jun 20, 2013	5	5-6	BK2
	Jul 07, 2014	7	7-9	BK2
Brown Trout <200mm	Jun 20, 2013	3	3-4	
	Jul 07, 2014	1	1-5	
Longnose Dace	Jun 20, 2013	149	133-165	
	Jul 07, 2014	266	226-306	

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Mountain Sucker	Aug 25, 2010	4	4-4
	Jun 15, 2012	6	5-13
	Jul 07, 2014	11	11-12
White Sucker	Aug 25, 2010	1	1-1
	Jul 07, 2014	3	3-4

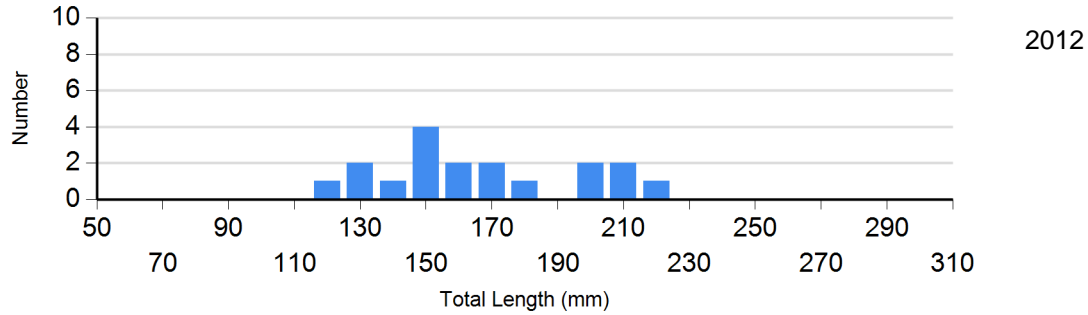
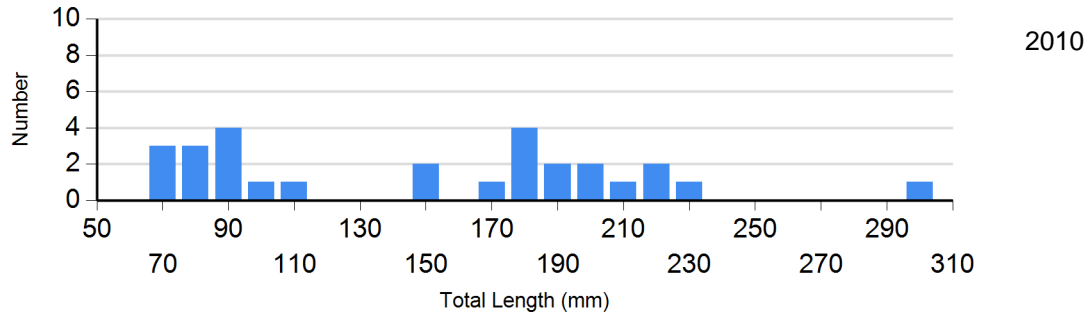
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## Length Frequency Distribution

Length frequency histogram of species sampled by year.

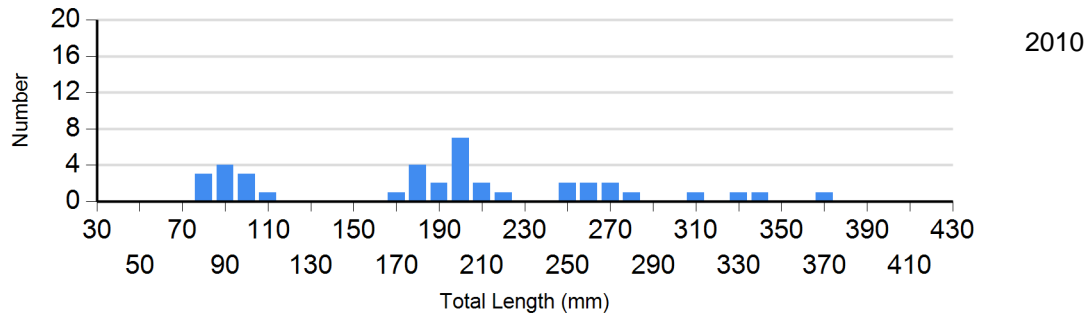
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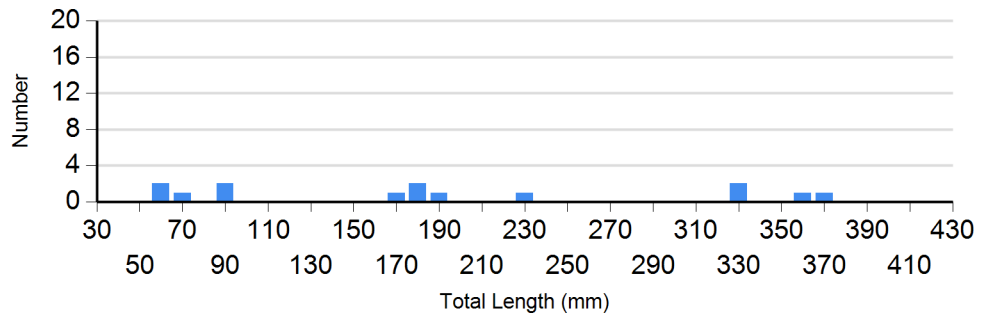
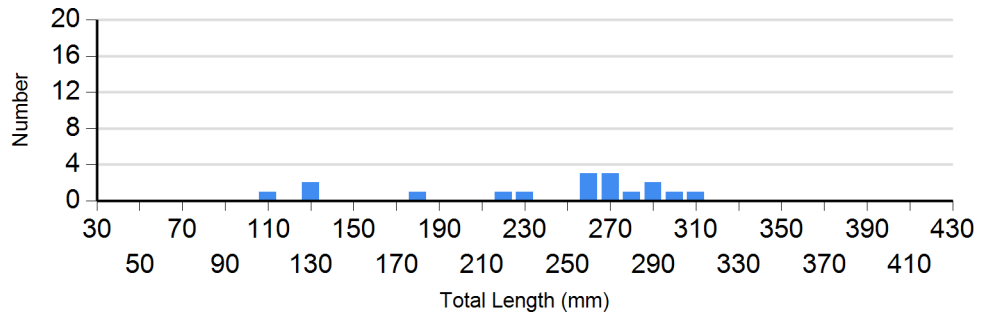
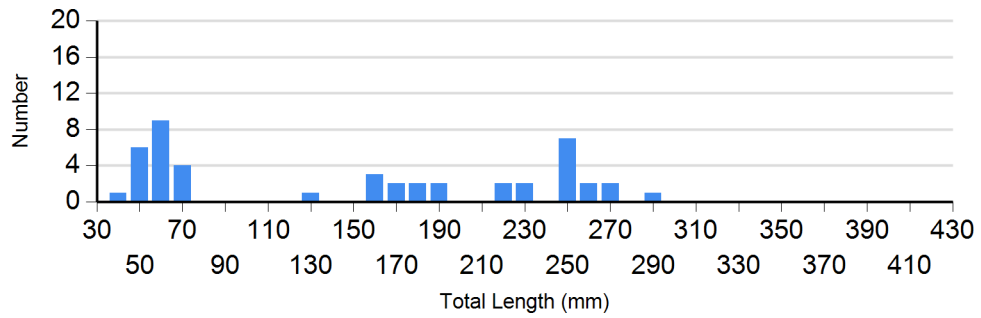
**Species:** Brook Trout



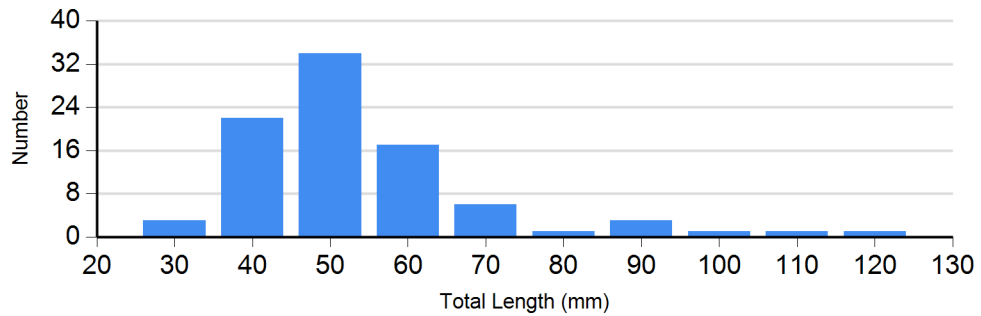
**Site:** 1983

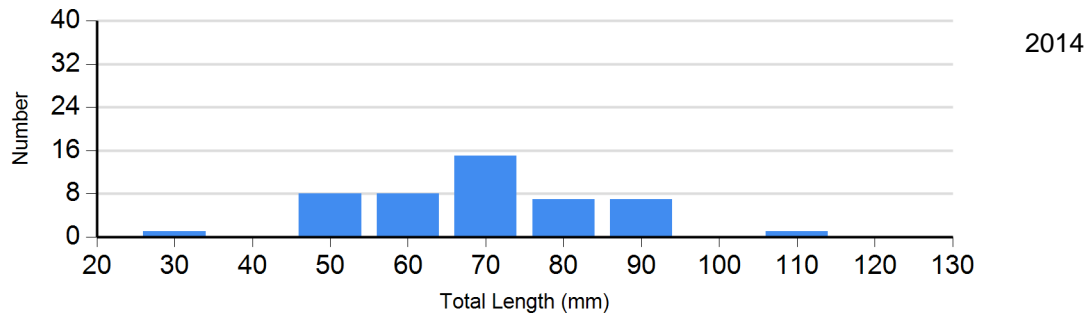
**Species:** Brown Trout



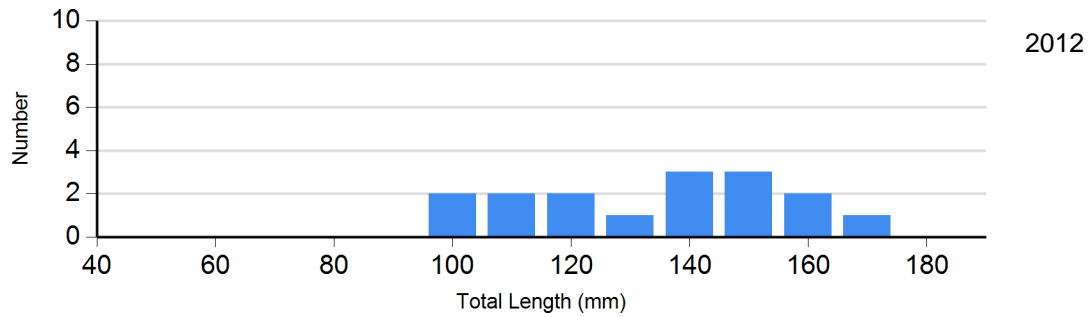
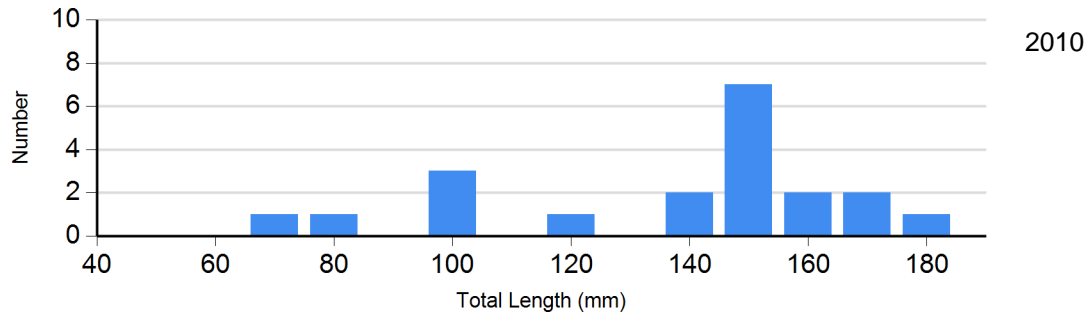


**Site:** 1983  
**Species:** Longnose Dace

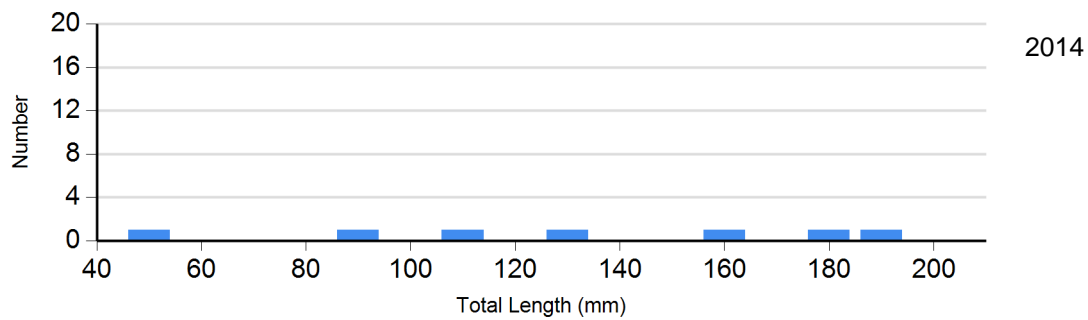
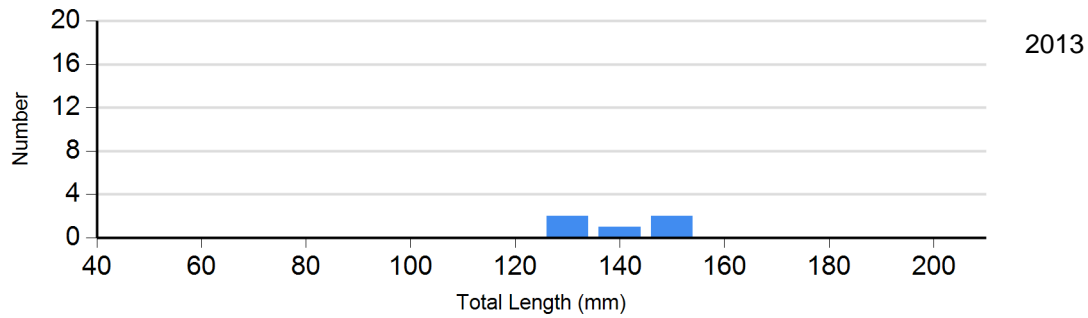
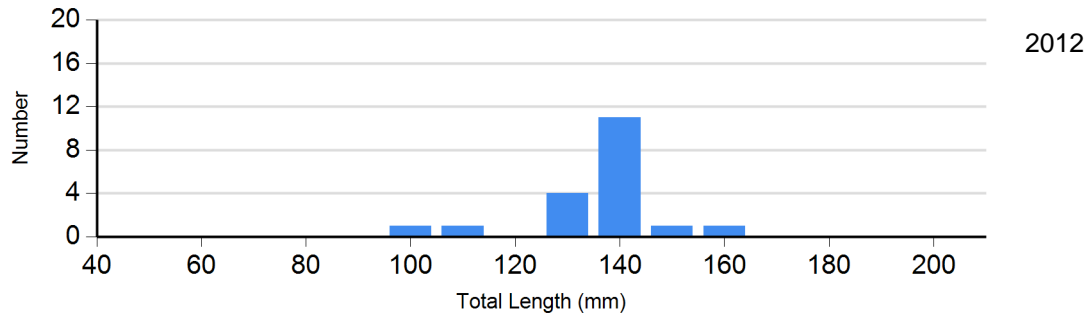
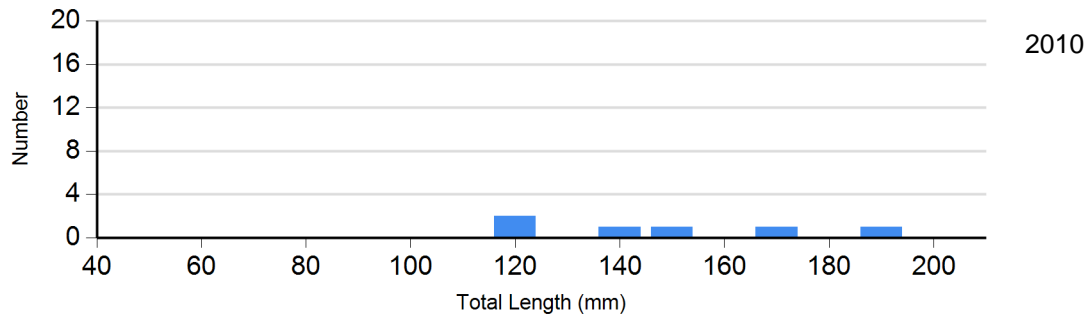




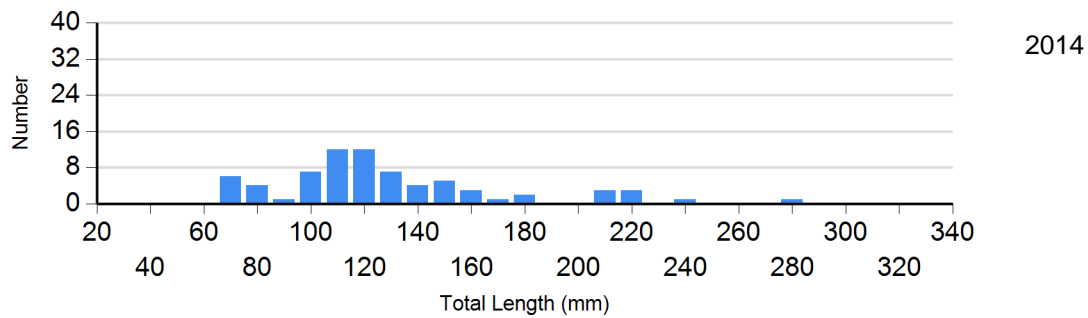
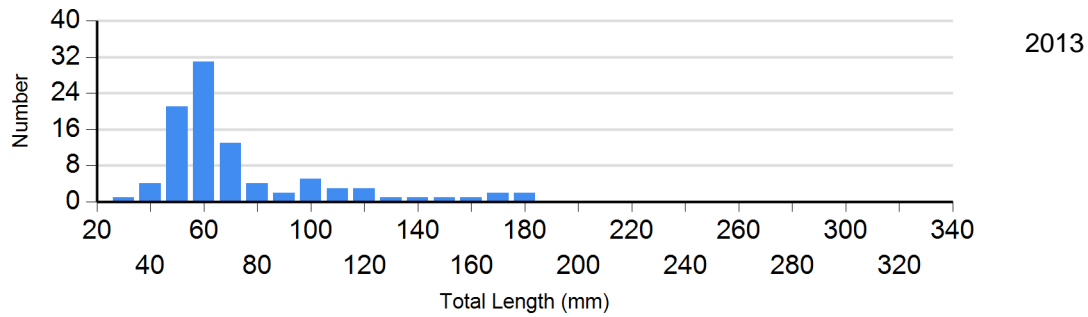
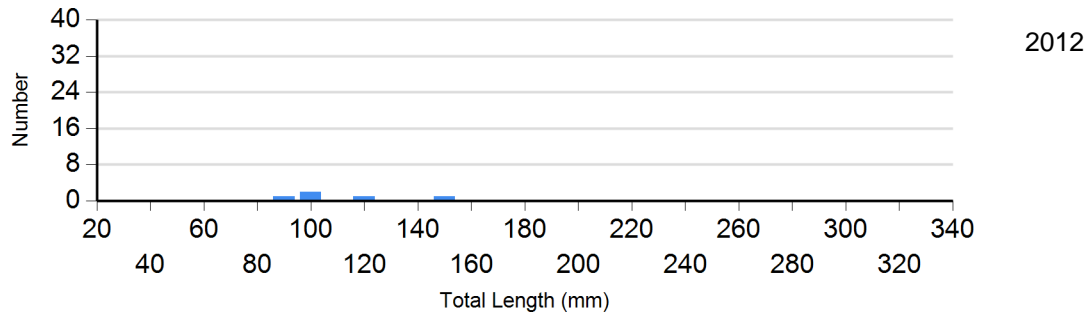
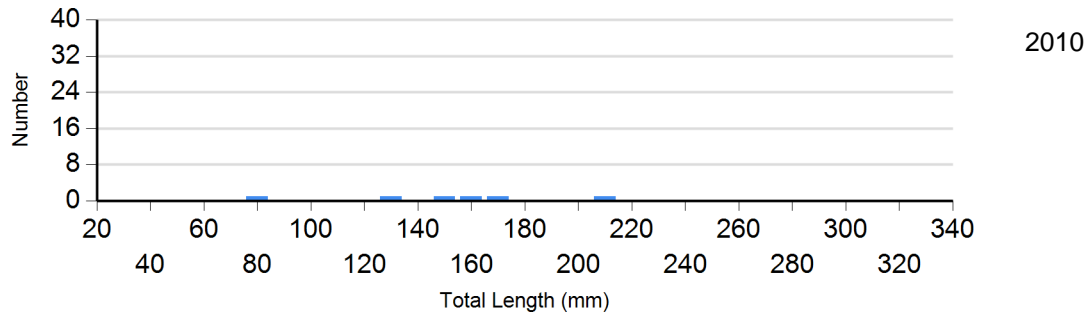
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**Species:** Mountain Sucker



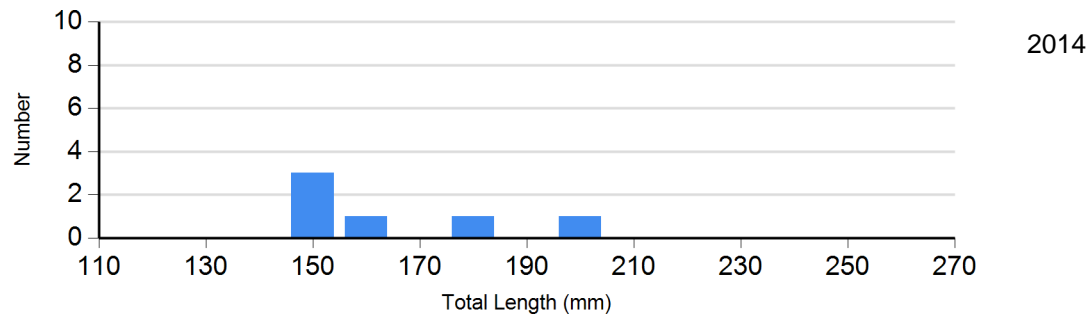
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Species: Stone Cat



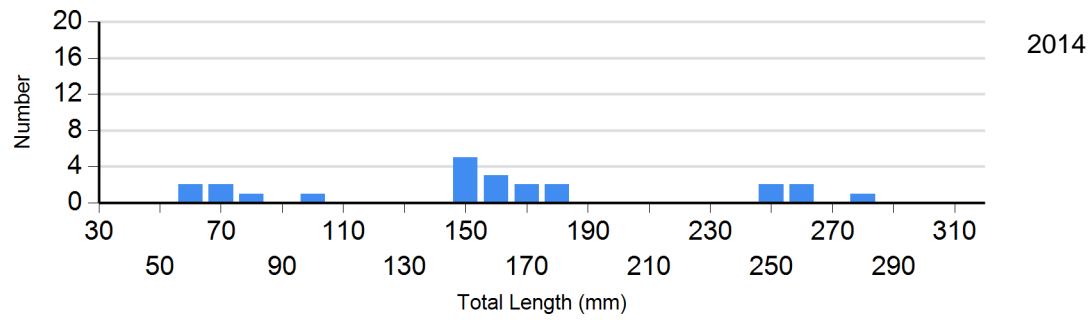
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Species: White Sucker



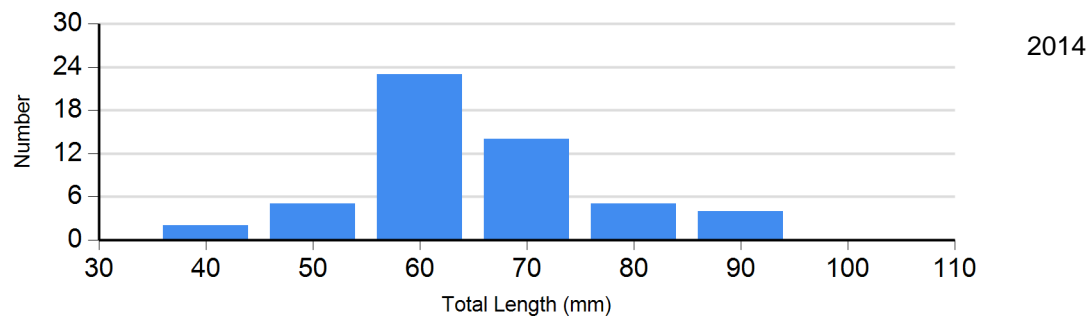
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**Species:** Brook Trout



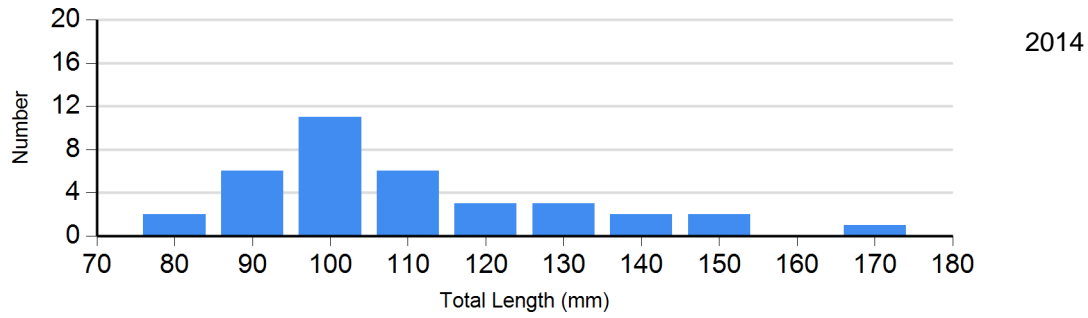
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**Species:** Brown Trout



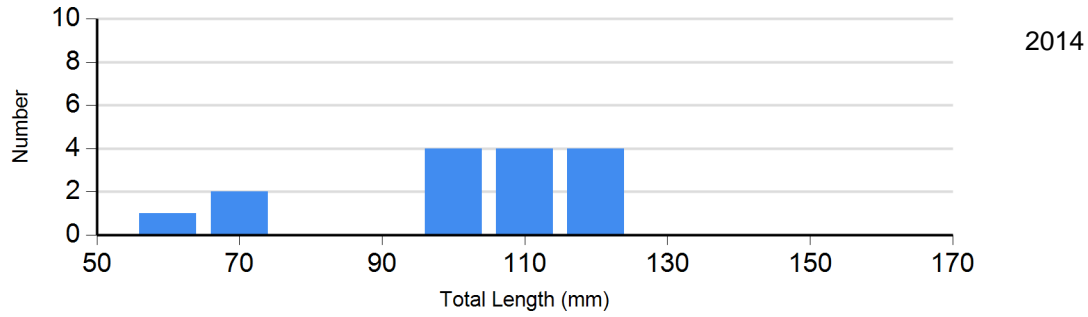
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**Species:** Longnose Dace



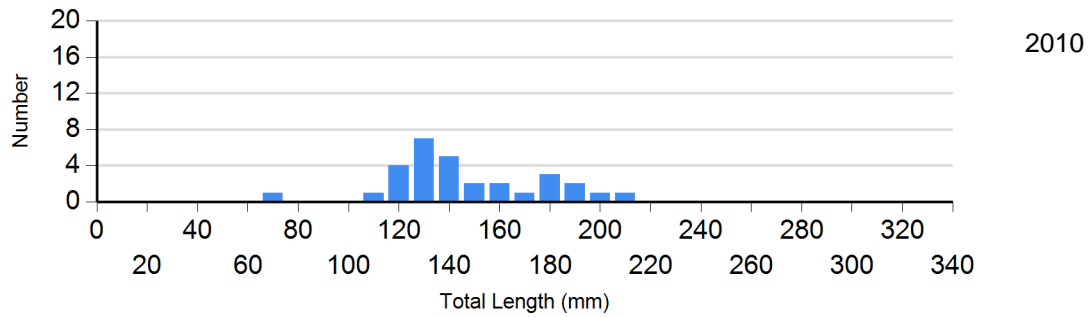
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**Species: Mountain Sucker**



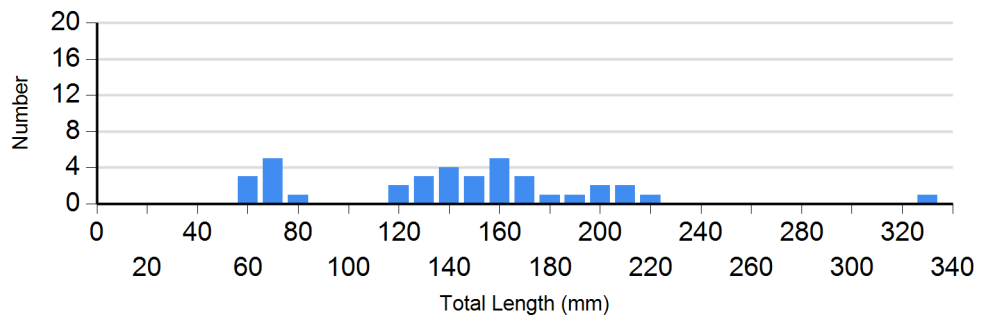
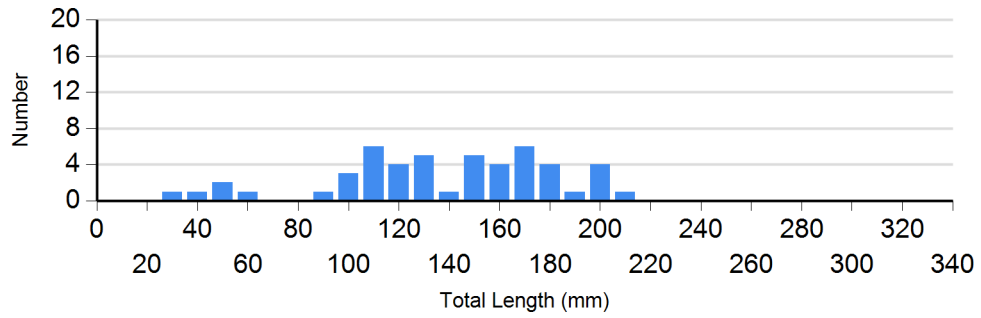
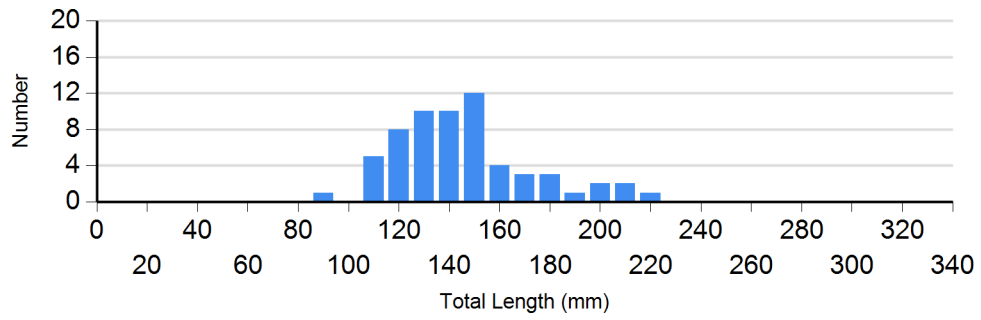
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**Species: White Sucker**



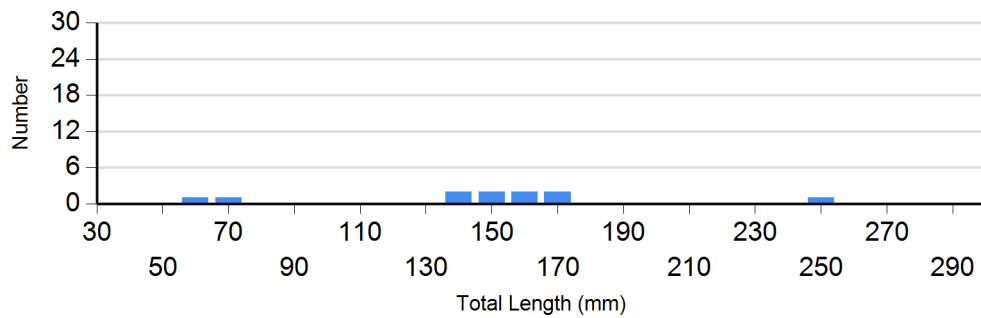
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**Species: Brook Trout**

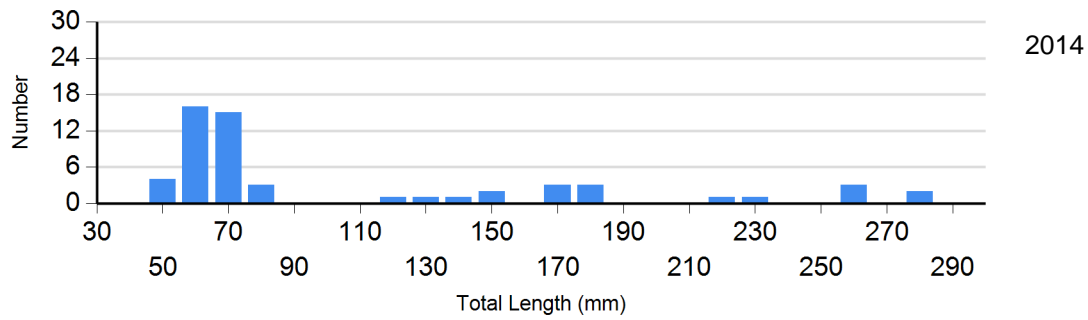
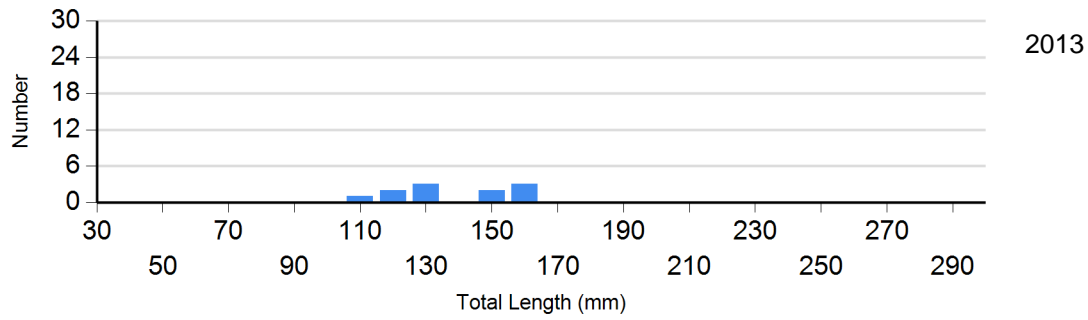
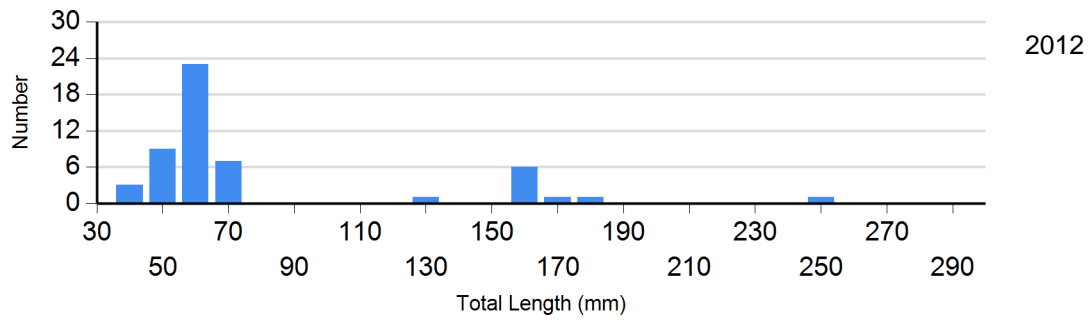




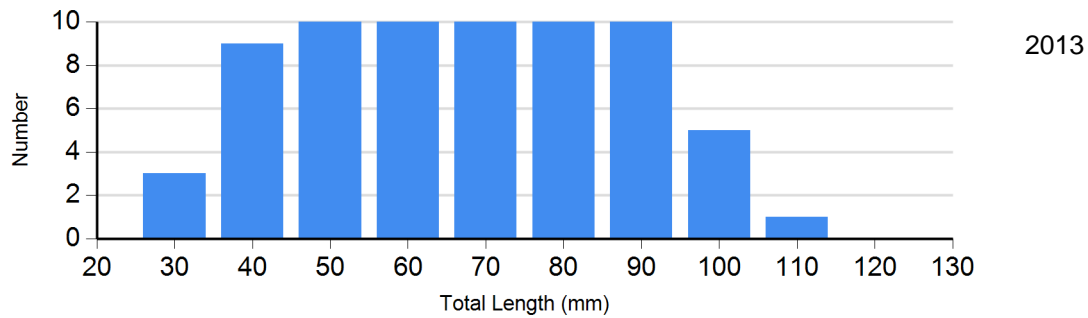


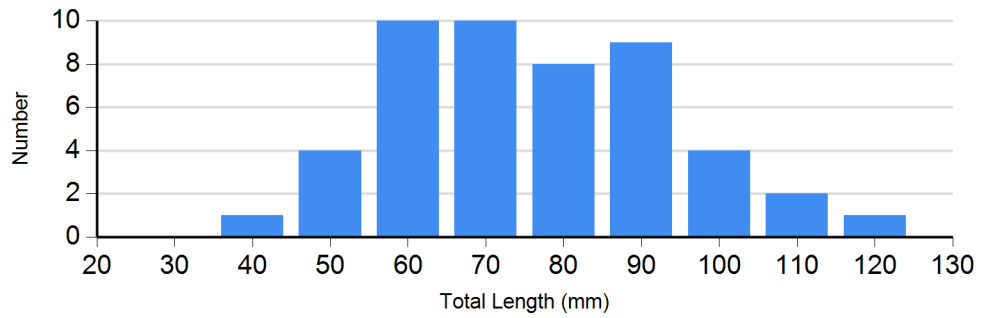
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**Species:** Brown Trout



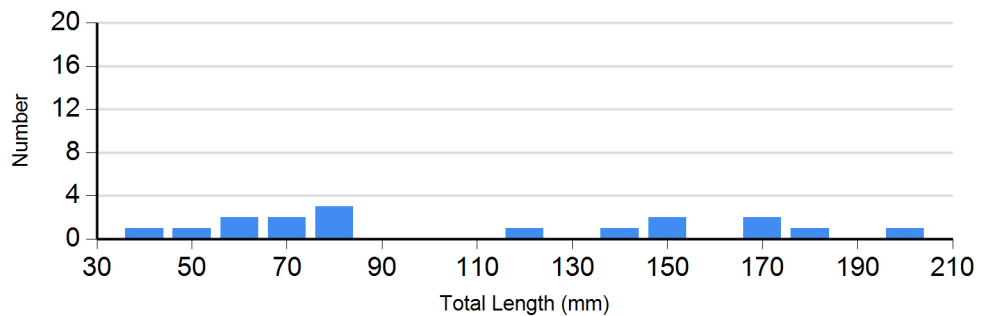
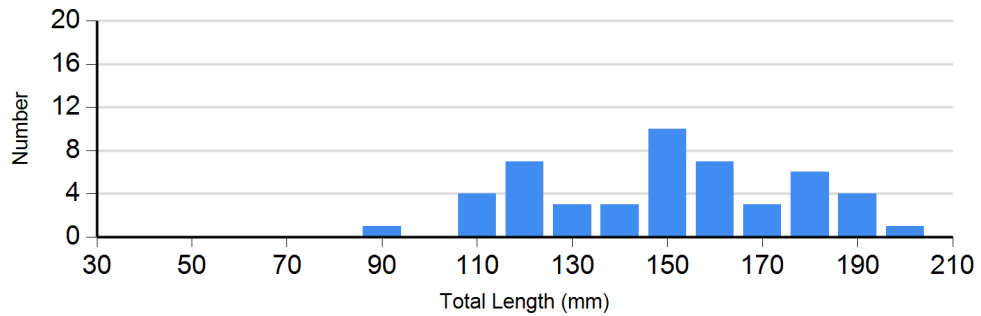
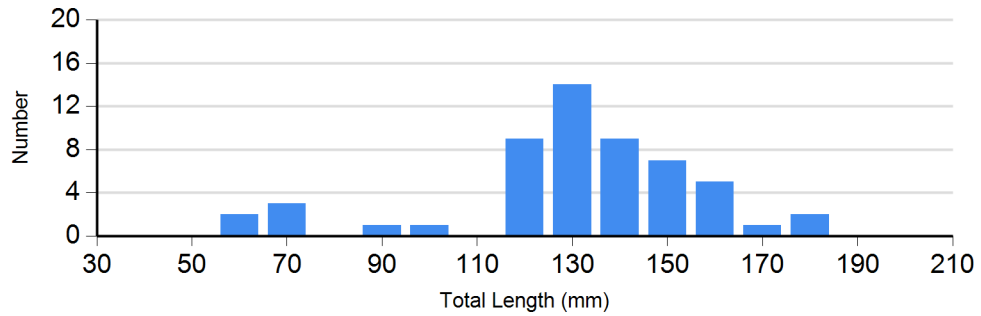


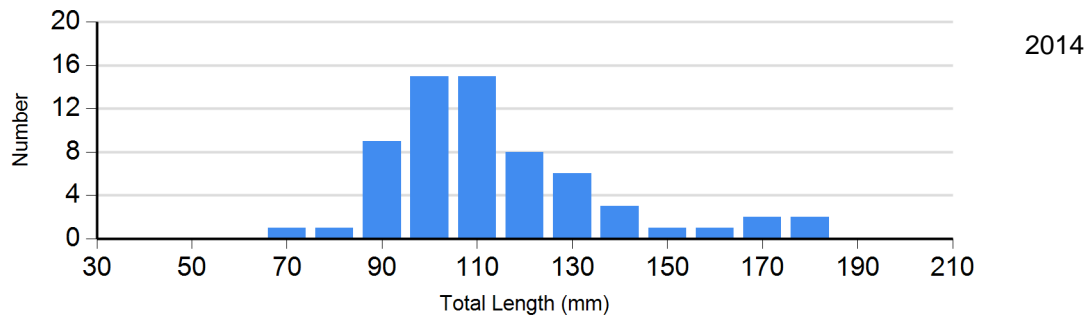
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**Species:** Longnose Dace



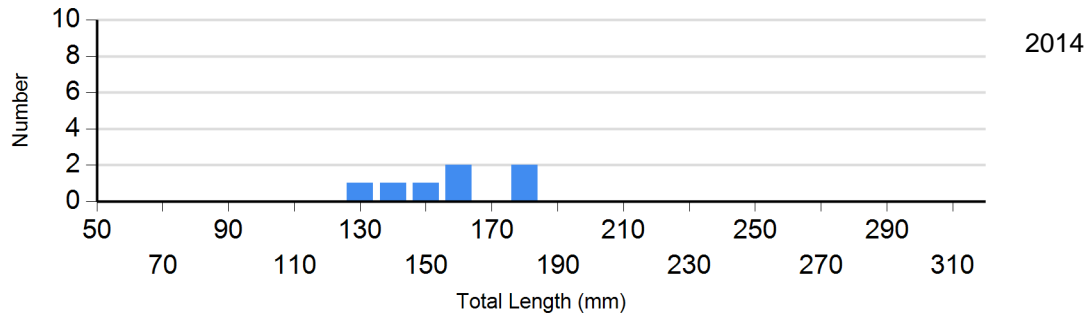


Site: 2099  
Species: Mountain Sucker

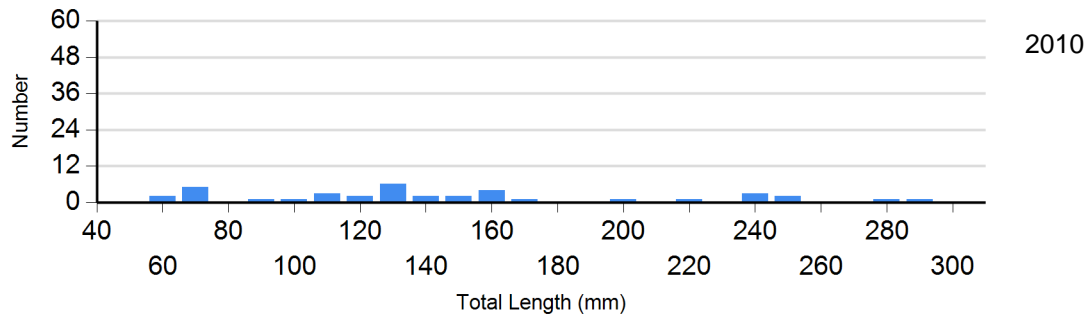


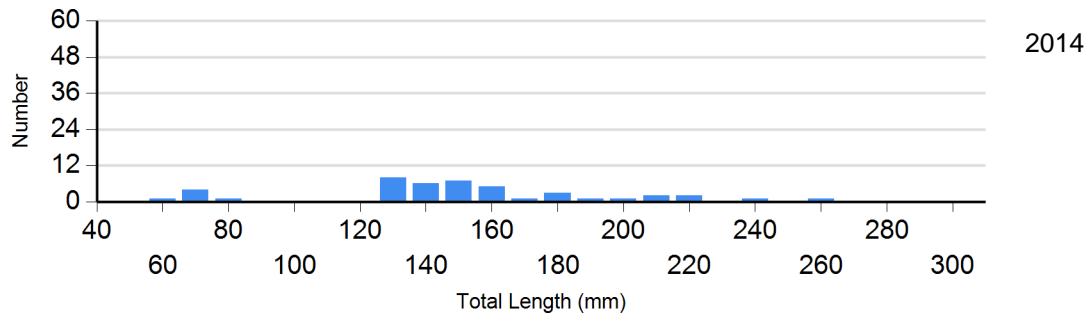
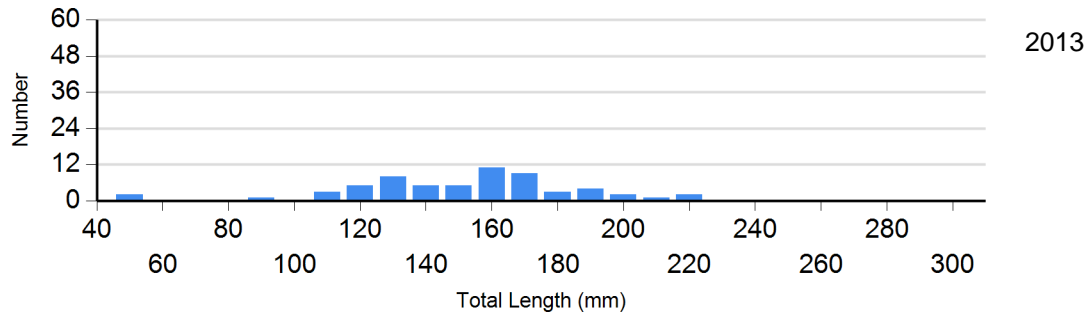
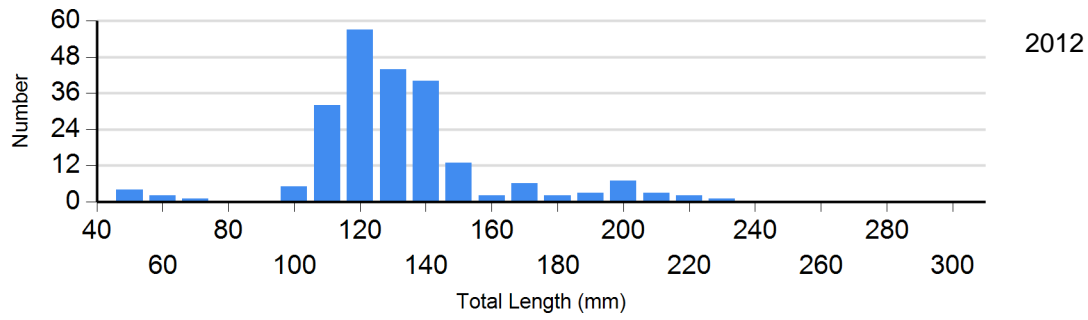


**Site:** 2099  
**Species:** White Sucker

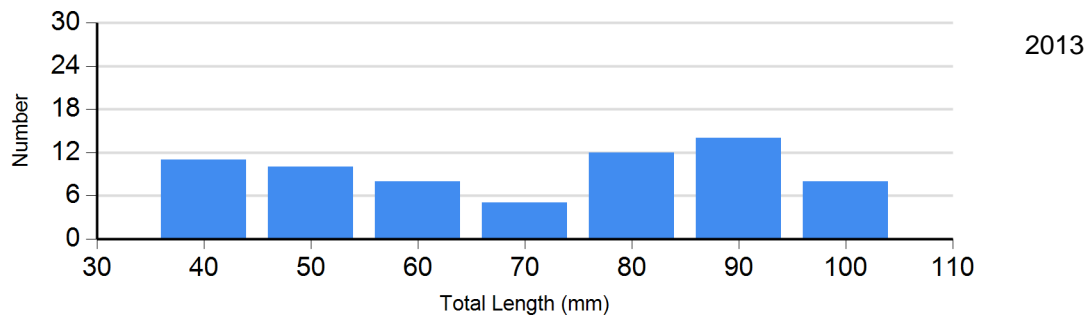


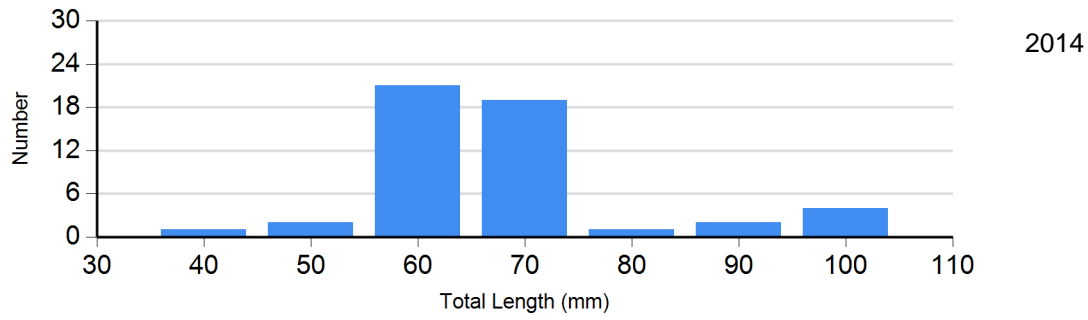
**Site:** 2207  
**Species:** Brook Trout





**Site:** 2207  
**Species:** Longnose Dace





**Site:** 2207  
**Species:** Mountain Sucker

