

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Bear Butte Creek, Meade County**  
**49-0023-00**  
**2015**

Table 1. Population and Biomass Estimates for Bear Butte Creek

<b>Site Number:</b> 951	<b>Date Sampled:</b> 10/07/2015	<b>Conductivity (umhos/cm):</b>	483
<b>Site Midpoint (Latitude, Longitude):</b> 44.33467177, -103.62481850	<b>Site Length (m):</b> 100	<b>pH:</b>	7.9
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 4.2	<b>Water Temperature (C):</b>	16.3
<b>Stream Classification:</b> BK1	<b>Number of Pass:</b> 3	<b>Voltage:</b>	

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	165	169	175	165	3998	149	1690	1619	132.94	2719	128.6	37.2
Brook Trout	>=200mm	73	73	74	73	1727	188	730	699	168.26	1175	225.6	109.1
Brook Trout	All	238	241	245	238	5701	382	2410	2309	341.34	3878	158.3	67.1
Longnose Dace	All	12	14	21	12	331	11	140	134	9.46	225	90.3	32.0
Mountain Sucker	All	1	1	5	1	24	1	10	10	1.06	16	151.0	50.0

<b>Site Number:</b> 955	<b>Date Sampled:</b> 06/09/2015	<b>Conductivity (umhos/cm):</b>	91
<b>Site Midpoint (Latitude, Longitude):</b> 44.33484568, -103.62910289	<b>Site Length (m):</b> 100	<b>pH:</b>	7.4
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 2.8	<b>Water Temperature (C):</b>	13.0
<b>Stream Classification:</b> BK2	<b>Number of Pass:</b> 3	<b>Voltage:</b>	

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	30	32	37	30	1135	29	320	460	26.13	515	119.5	25.8
Brook Trout	>=200mm	2	2	3	2	71	8	20	29	6.78	32	210.5	107.0
Brook Trout	All	32	34	39	32	1206	38	340	489	33.80	547	125.2	31.4

Longnose Dace	All	27	27	29	27	958	11	270	388	9.90	434	81.5	11.6
White Sucker	All	2	2	3	2	71	20	20	29	17.74	32	284.0	280.0

**Site Number:** 955  
**Site Midpoint (Latitude, Longitude):** 44.33484568, -103.62910289  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BK1

**Date Sampled:** 10/07/2015  
**Site Length (m):** 100  
**Mean Width (m):** 4.2  
**Number of Pass:** 3

**Conductivity (umhos/cm):** 483  
**pH:** 7.9  
**Water Temperature (C):** 16.3  
**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	146	149	154	146	3510	112	1490	1421	100.08	2397	123.9	31.9
Brook Trout	>=200mm	33	33	34	33	777	80	330	315	71.76	531	219.1	103.4
Brook Trout	All	179	182	187	179	4287	216	1820	1736	192.76	2928	141.5	50.4
Longnose Dace	All	8	7	11	8	165	3	70	67	2.26	113	91.9	15.3

**Site Number:** 976  
**Site Midpoint (Latitude, Longitude):** 44.32812906, -103.64456485  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BK1

**Date Sampled:** 10/02/2015  
**Site Length (m):** 100  
**Mean Width (m):** 3.9  
**Number of Pass:** 3

**Conductivity (umhos/cm):** 568  
**pH:** 8.8  
**Water Temperature (C):** 15.3  
**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	238	243	249	238	6188	217	2430	2506	193.54	3910	125.2	35.0
Brook Trout	>=200mm	41	41	42	41	1044	111	410	423	99.03	660	223.5	106.2
Brook Trout	All	279	285	291	279	7257	362	2850	2939	323.51	4586	139.6	49.9
Longnose Dace	All	5	6	13	5	153	3	60	62	2.46	97	100.6	18.0
Rock Bass	All	1	1	5	1	25	1	10	10	0.64	16	109.0	28.0

**Site Number:** 988  
**Site Midpoint (Latitude, Longitude):** 44.32359378, -103.65026058  
**Survey Completed by:** GEI  
**Stream Classification:** BK3, RB2

**Date Sampled:** 07/21/2015  
**Site Length (m):**  
**Mean Width (m):** 0.0  
**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	97	103	111	97	0	0	0	0	0.00	0	116.5	41.4
Brook Trout	>=200mm	14	14	14	14	0	0	0	0	0.00	0	224.4	117.9
Brook Trout	All	112	116	122	112	0	0	0	0	0.00	0	130.1	58.4
Longnose Dace	All	146	145	183	146	0	0	0	0	0.00	0	76.5	12.1
Rainbow Trout	>=200mm	1	1	1	1	0	0	0	0	0.00	0	318.0	314.0
Rainbow Trout	All	1	1	1	1	0	0	0	0	0.00	0	318.0	314.0
White Sucker	All	10	10	10	10	0	0	0	0	0.00	0	121.3	19.0

**Site Number:** 1048  
**Site Midpoint (Latitude, Longitude):** 44.29859320, -103.67654526  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BK2

**Date Sampled:** 06/09/2015  
**Site Length (m):** 100  
**Mean Width (m):** 3.2  
**Number of Pass:** 3  
**Conductivity (umhos/cm):** 115  
**pH:** 7.2  
**Water Temperature (C):** 9.3  
**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)
Black Crappie	All	5	5	5	5	154	5	50	63	4.19	80	142.8	30.4
Brook Trout	<200mm	20	21	25	20	649	24	210	263	21.38	338	144.4	36.9
Brook Trout	>=200mm	8	8	10	8	247	38	80	100	34.04	129	233.9	154.3
Brook Trout	All	28	30	35	28	927	65	300	375	58.29	483	170.0	70.4
Longnose Dace	All	51	52	56	51	1607	40	520	651	35.58	837	71.9	24.8

Mountain Sucker	All	4	4	5	4	124	4	40	50	3.20	64	93.8	29.0
White Sucker	All	4	4	5	4	124	1	40	50	1.32	64	89.3	12.0

Site Number: 1077

Site Midpoint (Latitude, Longitude): 44.28798072, -103.69289253

Survey Completed by:

Stream Classification: BK2

Date Sampled: 06/06/2015

Site Length (m): 100

Mean Width (m): 2.8

Number of Pass: 3

Conductivity (umhos/cm): 91

pH: 7.4

Water Temperature (C): 13.0

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	30	32	37	30	1143	29	320	463	26.30	515	119.5	25.8
Brook Trout	>=200mm	2	2	3	2	71	8	20	29	6.82	32	210.5	107.0
Brook Trout	All	32	34	39	32	1214	38	340	492	34.02	547	125.2	31.4
Longnose Dace	All	27	27	29	27	964	11	270	391	9.96	434	81.5	11.6
White Sucker	All	2	2	3	2	71	20	20	29	17.86	32	284.0	280.0

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 Bear Butte Creek, 2005-2015

**Site 951**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 12, 2010	98	98-98	
	Oct 07, 2015	169	165-175	
Brook Trout >=200mm	Jul 12, 2010	12	12-12	BK2
	Oct 07, 2015	73	73-74	BK1
Longnose Dace	Oct 07, 2015	14	12-21	
Mountain Sucker	Jul 12, 2010	2	2-2	
	Oct 07, 2015	1	1-5	

Rock Bass

Jul 12, 2010

1

1-1

**Site 955**

<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Trout <200mm	Jun 09, 2015	32	30-37	
	Oct 07, 2015	149	146-154	
Brook Trout >=200mm	Jun 09, 2015	2	2-3	BK2
	Oct 07, 2015	33	33-34	BK1
Longnose Dace	Jun 09, 2015	27	27-29	
	Oct 07, 2015	7	8-11	
White Sucker	Jun 09, 2015	2	2-3	

**Site 976**

<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Trout <200mm	Sep 11, 2007	120	121-135	
	Jul 12, 2010	102	102-102	
	Oct 02, 2015	243	238-249	
Brook Trout >=200mm	Sep 11, 2007	7	7-9	BK2
	Jul 12, 2010	17	17-17	BK1

Brook Trout >=200mm	Oct 02, 2015	41	41-42	BK1
Longnose Dace	Oct 02, 2015	6	5-13	
Rock Bass	Jul 12, 2010	3	3-3	
	Oct 02, 2015	1	1-5	

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**Site 988**


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Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 12, 2007	58	57-61	
	Jul 12, 2010	14	14-14	
	Jul 21, 2015	103	97-111	
Brook Trout >=200mm	Sep 12, 2007	2	2-2	BK2
	Jul 12, 2010	4	4-4	BK2
	Jul 21, 2015	14	14-14	BK3
Longnose Dace	Jul 21, 2015	145	146-183	
Mountain Sucker	Jul 12, 2010	5	5-5	
Rainbow Trout >=200mm	Jul 21, 2015	1	1-1	RB2
White Sucker	Jul 21, 2015	10	10-10	

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**Site 1048**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Black Crappie	Jun 09, 2015	5	5-5	
Brook Trout <200mm	Jul 13, 2010	28	28-28	
	Jun 09, 2015	21	20-25	
Brook Trout >=200mm	Jul 13, 2010	2	2-2	BK2
	Jun 09, 2015	8	8-10	BK2
Longnose Dace	Jun 09, 2015	52	51-56	
Mountain Sucker	Jul 13, 2010	5	5-5	
	Jun 09, 2015	4	4-5	
Rock Bass	Jul 13, 2010	5	5-5	
White Sucker	Jun 09, 2015	4	4-5	

**Site 1077**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 06, 2015	32	30-37	
Brook Trout >=200mm	Jun 06, 2015	2	2-3	BK2
Longnose Dace	Jun 06, 2015	27	27-29	



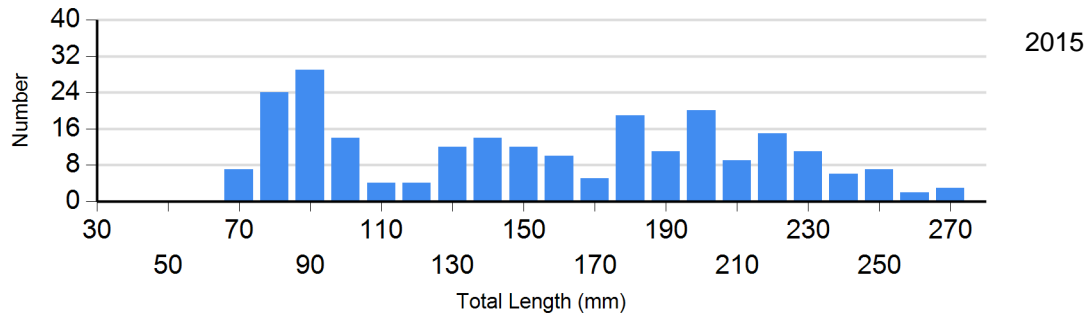
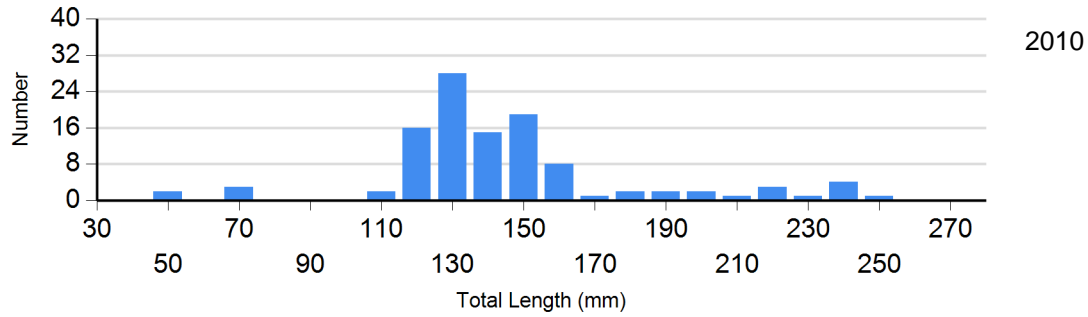


## Length Frequency Distribution

Length frequency histogram of species sampled by year.

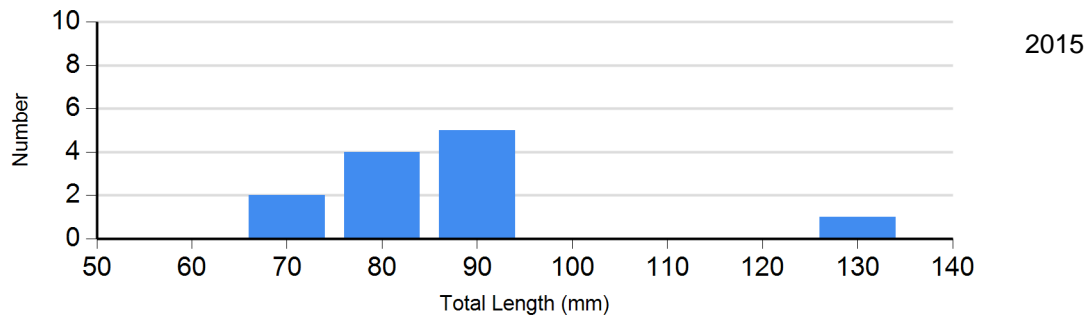
**Site:** 951

**Species:** Brook Trout

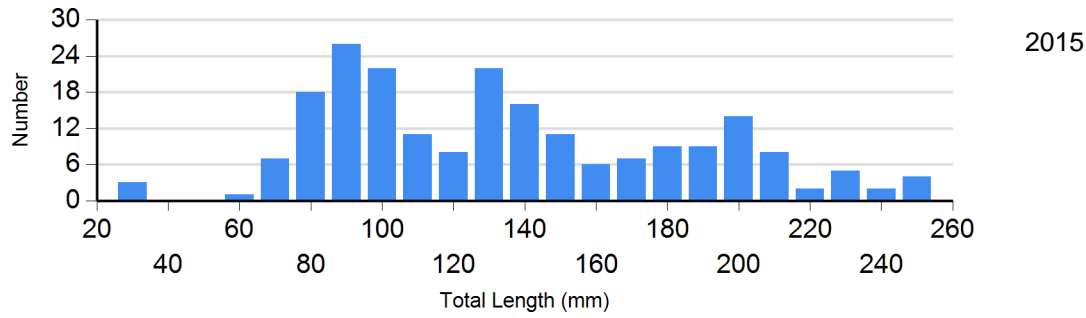


**Site:** 951

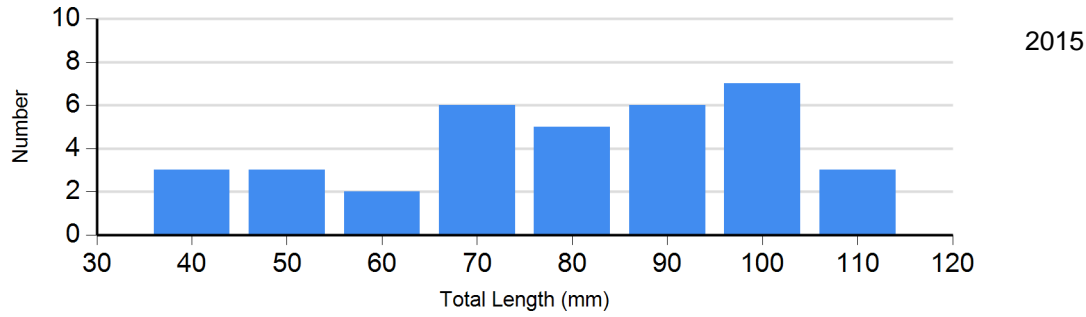
**Species:** Longnose Dace



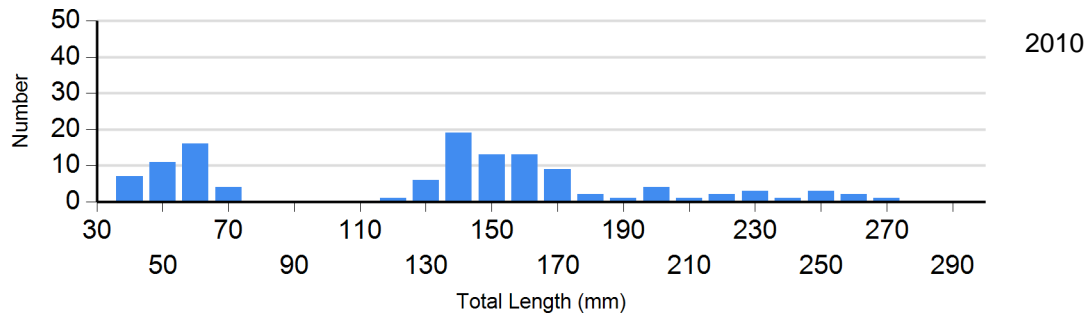
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**Species:** Brook Trout

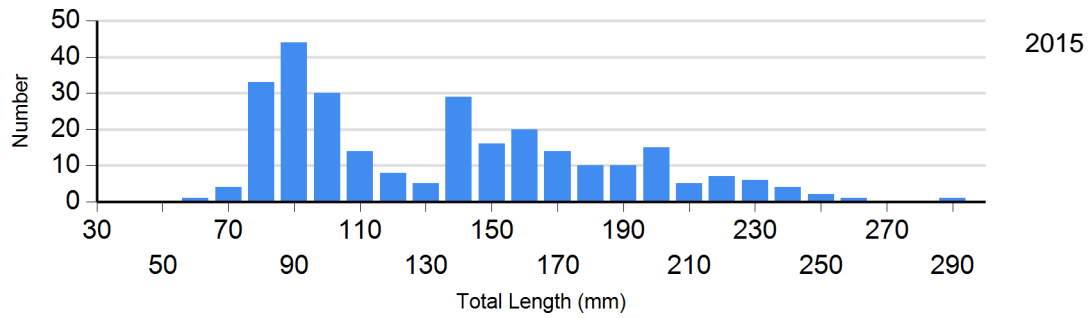


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**Species:** Longnose Dace

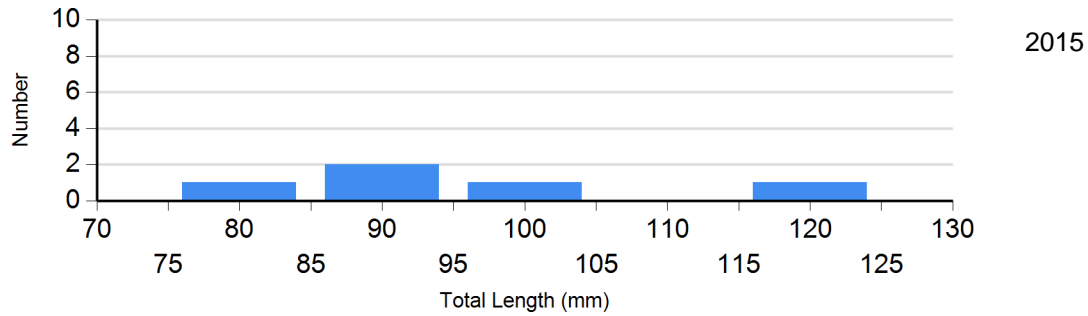


**Site:** 976  
**Species:** Brook Trout

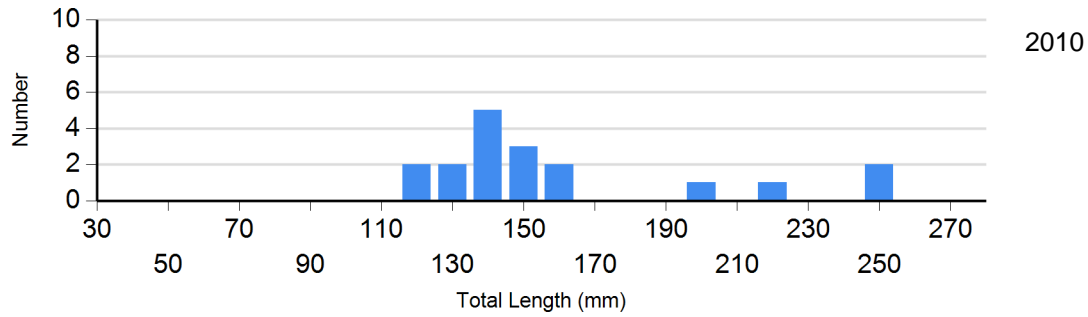


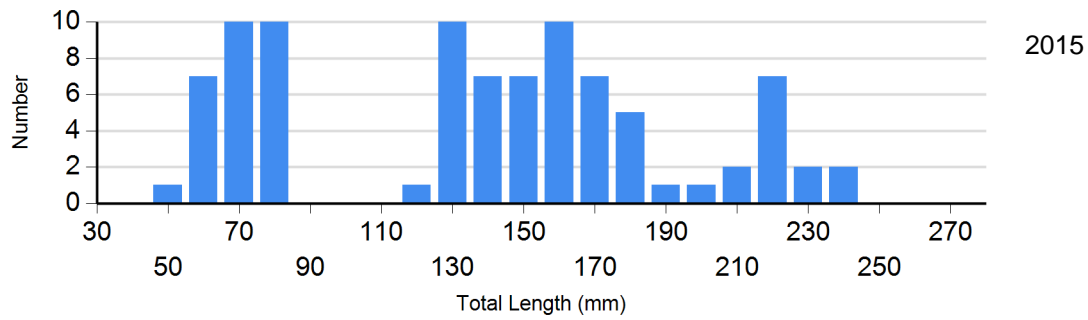


**Site:** 976  
**Species:** Longnose Dace

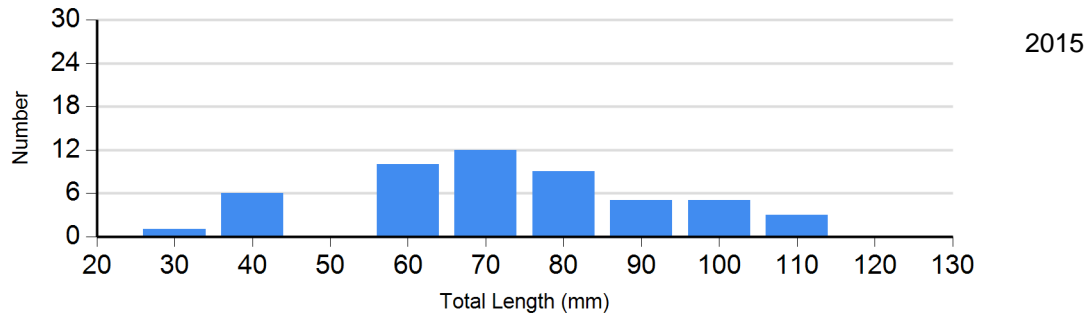


**Site:** 988  
**Species:** Brook Trout

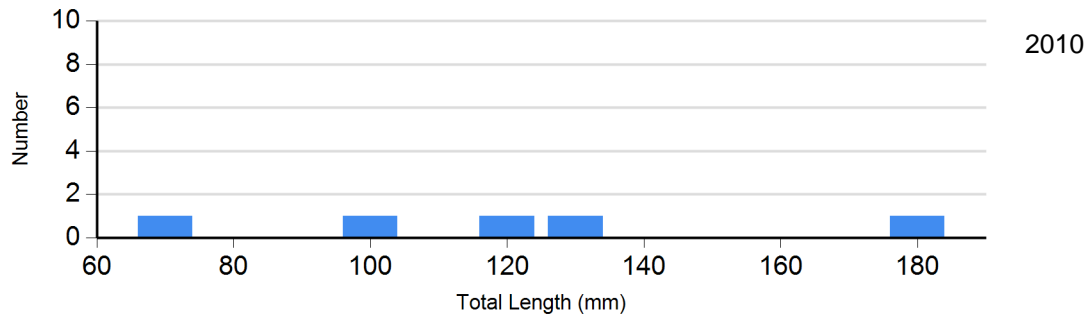




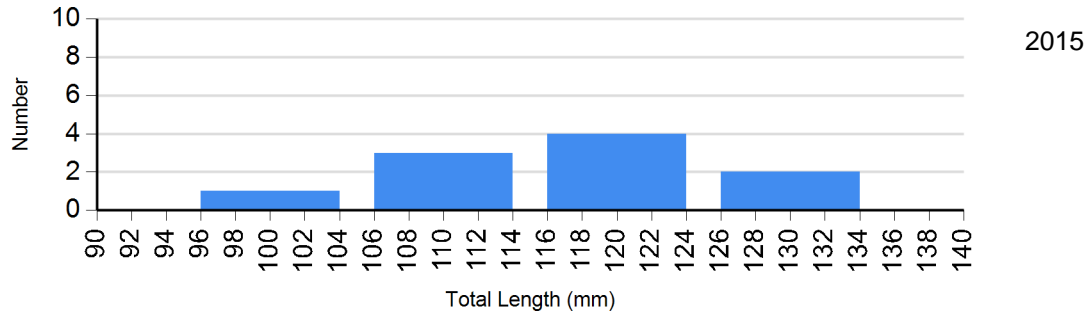
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**Species:** Longnose Dace



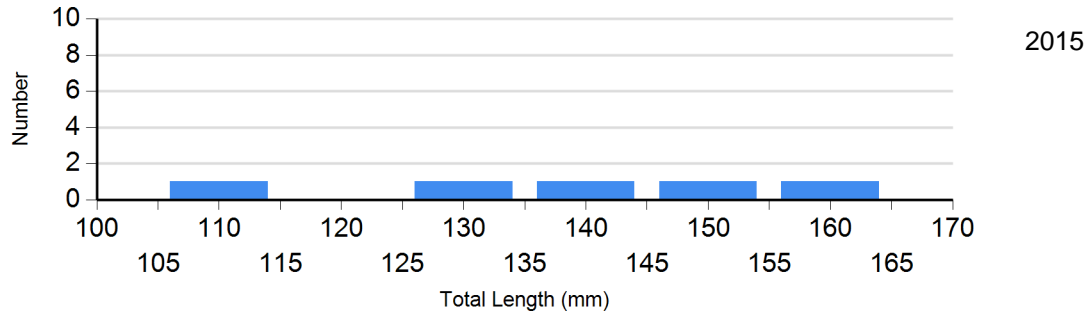
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**Species:** Mountain Sucker



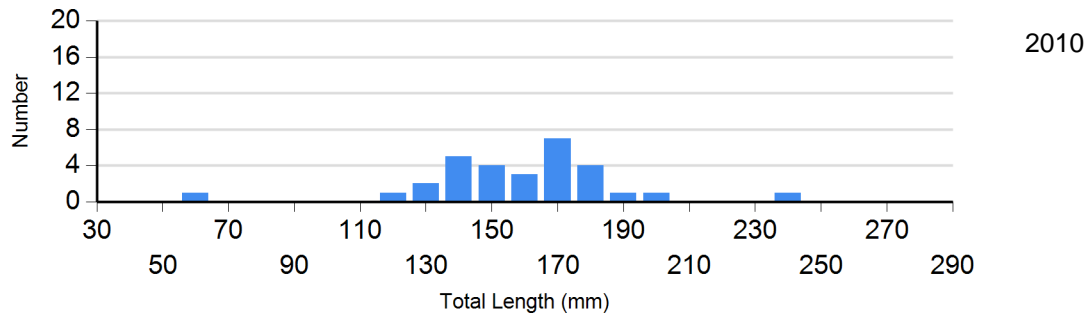
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**Species:** White Sucker

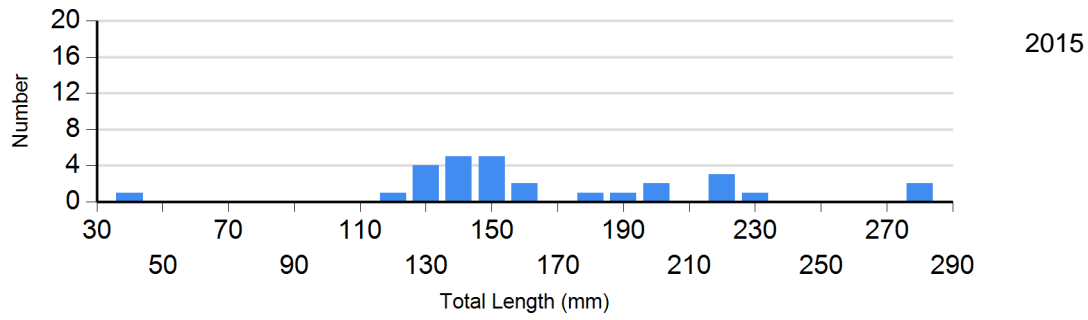


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**Species:** Black Crappie

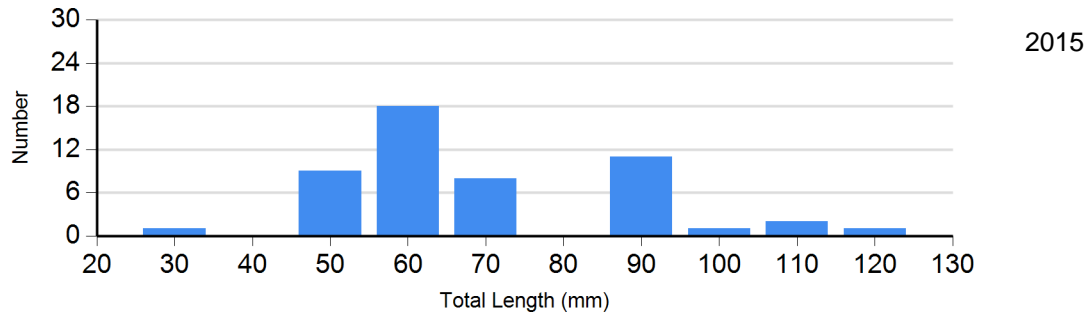


**Site:** 1048  
**Species:** Brook Trout

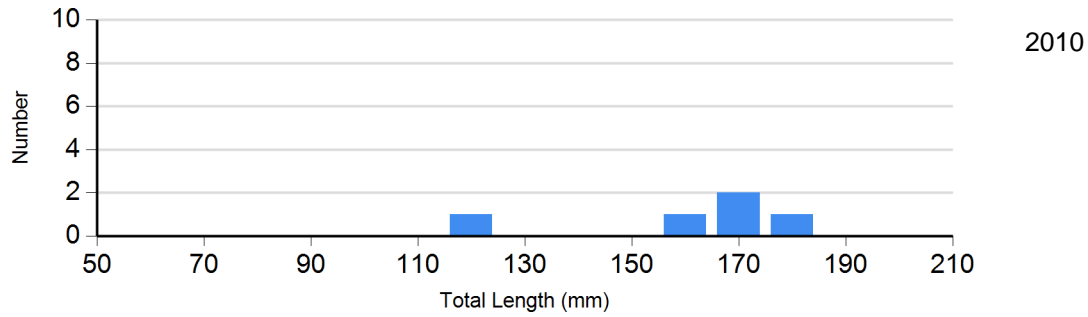


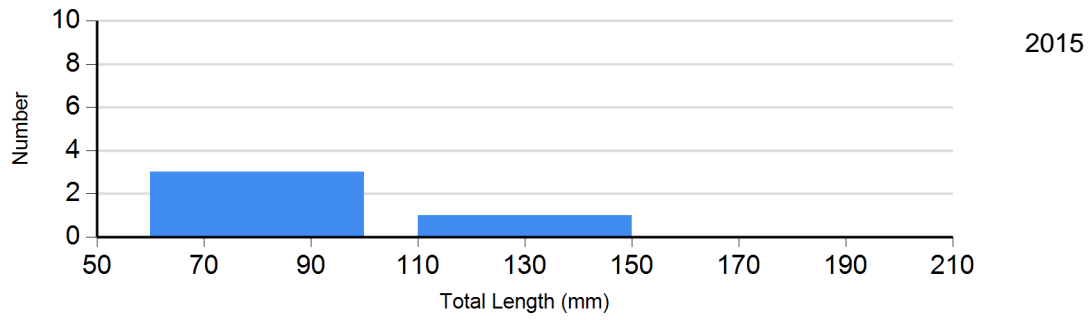


**Site:** 1048  
**Species:** Longnose Dace

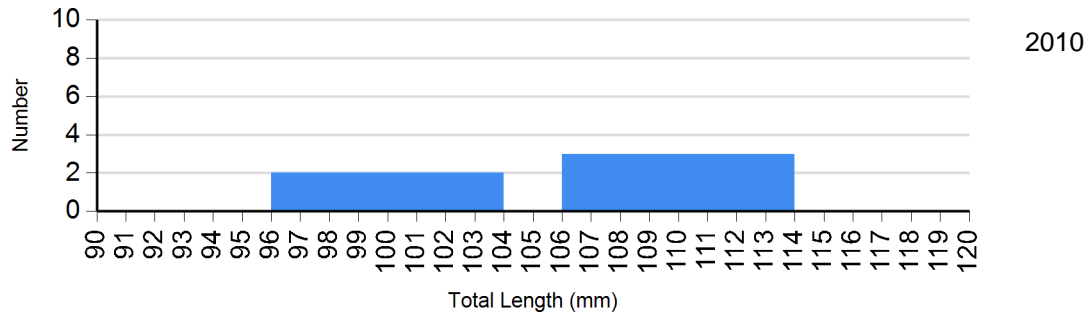


**Site:** 1048  
**Species:** Mountain Sucker

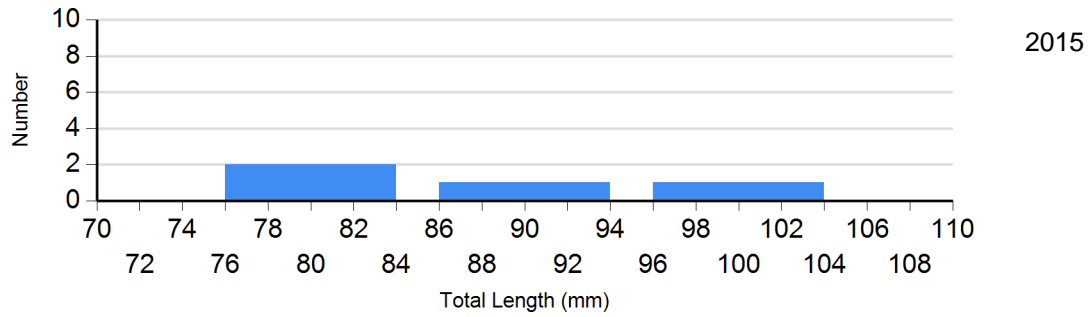




**Site:** 1048  
**Species:** Rock Bass

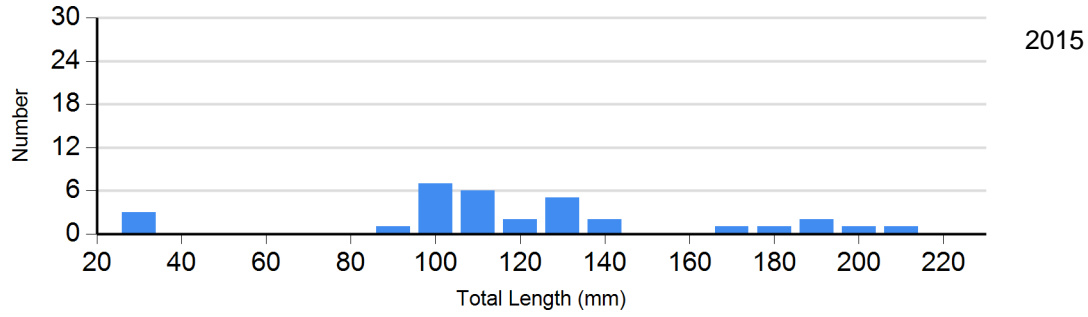
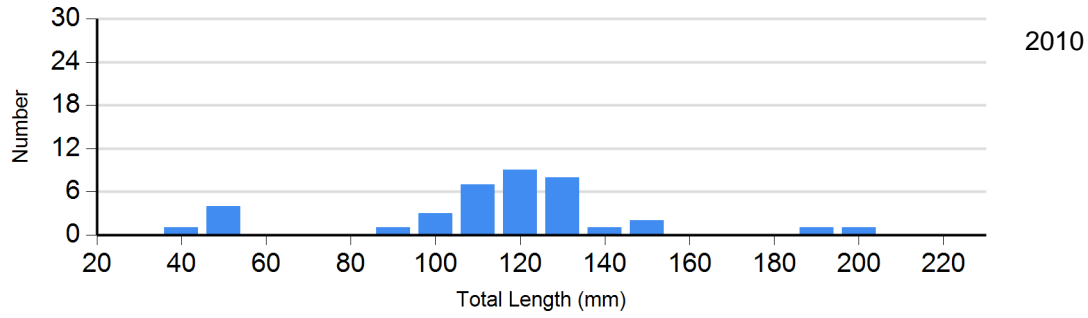


**Site:** 1048  
**Species:** White Sucker





**Site: 1077**  
**Species: Brook Trout**



**Site: 1077**  
**Species: Longnose Dace**

