

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Castle Creek, Pennington County**  
**02-0071-00**  
**1992**

Table 1. Population and Biomass Estimates for Castle Creek

<b>Site Number:</b> 356	<b>Date Sampled:</b> 10/16/1992	<b>Conductivity (umhos/cm):</b> 195
<b>Site Midpoint (Latitude, Longitude):</b> 44.05717425, -103.76307493	<b>Site Length (m):</b> 100	<b>pH:</b>
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 2.6	<b>Water Temperature (C):</b>
<b>Stream Classification:</b> BK2, BR1	<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	71	71	72	71	2731	37	710	1106	32.97	1142	106.6	13.5
Brook Trout	>=200mm	3	3	3	3	115	14	30	47	12.84	48	240.7	124.7
Brook Trout	All	74	74	75	74	2846	51	740	1153	45.81	1191	112.1	18.0
Brown Trout	<200mm	84	86	90	84	3308	71	860	1340	63.08	1384	112.1	21.4
Brown Trout	>=200mm	23	23	24	23	885	141	230	358	126.20	370	248.6	159.8
Brown Trout	All	107	109	113	107	4192	214	1090	1698	191.32	1754	141.4	51.1

<b>Site Number:</b> 384	<b>Date Sampled:</b> 10/14/1992	<b>Conductivity (umhos/cm):</b>
<b>Site Midpoint (Latitude, Longitude):</b> 44.04396904, -103.77363060	<b>Site Length (m):</b> 113	<b>pH:</b>
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 4.1	<b>Water Temperature (C):</b>
<b>Stream Classification:</b> BK2, BR1	<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	109	127	146	109	3098	106	1124	1255	94.95	1808	145.6	34.3
Brook Trout	>=200mm	11	11	12	11	268	31	97	109	27.96	157	228.5	116.7
Brook Trout	All	120	137	154	120	3341	140	1212	1353	124.96	1951	153.2	41.9

Brown Trout	<200mm	13	13	14	13	317	17	115	128	15.51	185	172.7	54.8
Brown Trout	>=200mm	32	34	39	32	829	150	301	336	134.13	484	256.3	181.2
Brown Trout	All	45	47	52	45	1146	166	416	464	148.05	669	232.1	144.6
White Sucker	All	7	7	9	7	171	0	62	69	0.41	100	63.6	2.7

**Site Number:** 388  
**Site Midpoint (Latitude, Longitude):** 44.04338453, -103.77130517  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BK2, BR1

**Date Sampled:** 10/14/1992      **Conductivity (umhos/cm):** 240  
**Site Length (m):** 100  
**Mean Width (m):** 4.9      **pH:**  
**Number of Pass:** 3      **Water Temperature (C):** 8.0  
**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	26	26	27	26	535	23	260	217	20.89	418	157.1	43.7
Brook Trout	>=200mm	12	16	30	12	329	40	160	133	35.54	257	226.3	120.9
Brook Trout	All	38	39	43	38	802	55	390	325	48.80	628	178.9	68.1
Brown Trout	<200mm	10	10	10	10	206	11	100	83	9.85	161	169.4	53.6
Brown Trout	>=200mm	27	27	28	27	556	103	270	225	92.39	434	256.9	186.3
Brown Trout	All	37	37	38	37	761	115	370	308	102.24	595	233.3	150.4

**Site Number:** 410  
**Site Midpoint (Latitude, Longitude):** 44.03214464, -103.77869838  
**Survey Completed by:** South Dakota Game, Fish and Parks  
**Stream Classification:** BK2, BR2

**Date Sampled:** 10/15/1992      **Conductivity (umhos/cm):** 220  
**Site Length (m):** 100  
**Mean Width (m):** 6.6      **pH:**  
**Number of Pass:** 3      **Water Temperature (C):** 6.0  
**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	119	125	133	119	1883	24	1250	762	21.75	2011	103.2	12.9
Brook Trout	>=200mm	14	14	15	14	211	28	140	85	25.39	225	226.3	134.9

Brook Trout	All	133	139	146	133	2093	54	1390	848	48.18	2237	116.2	25.8
Brown Trout	>=200mm	14	14	14	14	211	51	140	85	45.13	225	276.9	239.7
Brown Trout	All	14	14	14	14	211	51	140	85	45.13	225	276.9	239.7

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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 Castle Creek, 1982-1992

**Site 356**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 16, 1992	71	71-72	
Brook Trout >=200mm	Oct 16, 1992	3	3-3	BK2
Brown Trout <200mm	Oct 16, 1992	86	84-90	
Brown Trout >=200mm	Oct 16, 1992	23	23-24	BR1

**Site 384**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 14, 1992	127	109-146	
Brook Trout >=200mm	Oct 14, 1992	11	11-12	BK2

Brown Trout <200mm	Oct 14, 1992	13	13-14	
Brown Trout >=200mm	Oct 14, 1992	34	32-39	BR1
White Sucker	Oct 14, 1992	7	7-9	

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**Site 388**


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Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 14, 1992	26	26-27	
Brook Trout >=200mm	Oct 14, 1992	16	12-30	BK2
Brown Trout <200mm	Oct 14, 1992	10	10-10	
Brown Trout >=200mm	Oct 14, 1992	27	27-28	BR1

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**Site 410**


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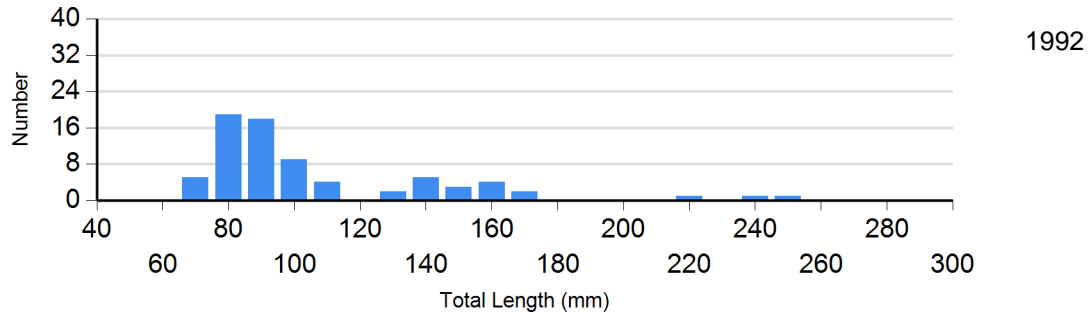
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 15, 1992	125	119-133	
Brook Trout >=200mm	Oct 15, 1992	14	14-15	BK2
Brown Trout >=200mm	Oct 15, 1992	14	14-14	BR2

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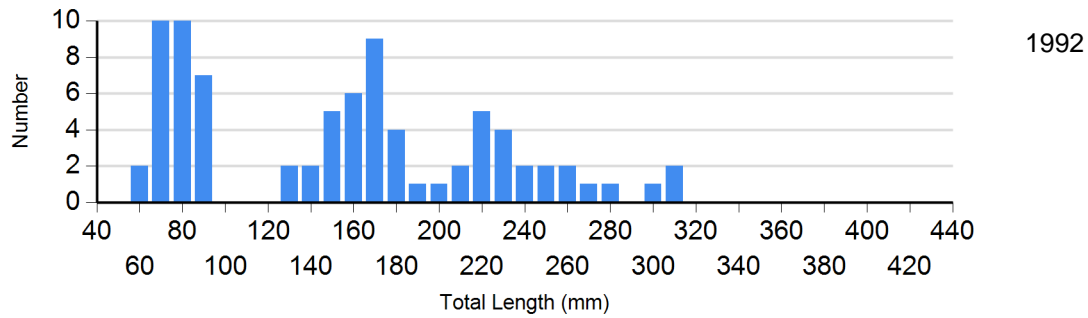
## Length Frequency Distribution

Length frequency histogram of species sampled by year.

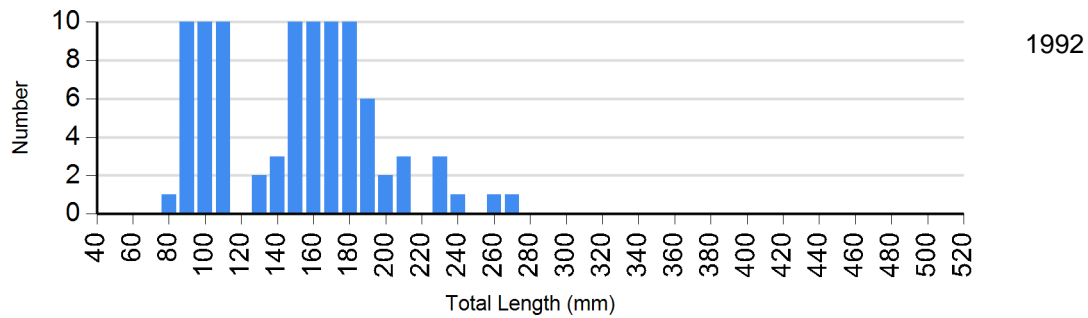
**Site:** 356  
**Species:** Brook Trout



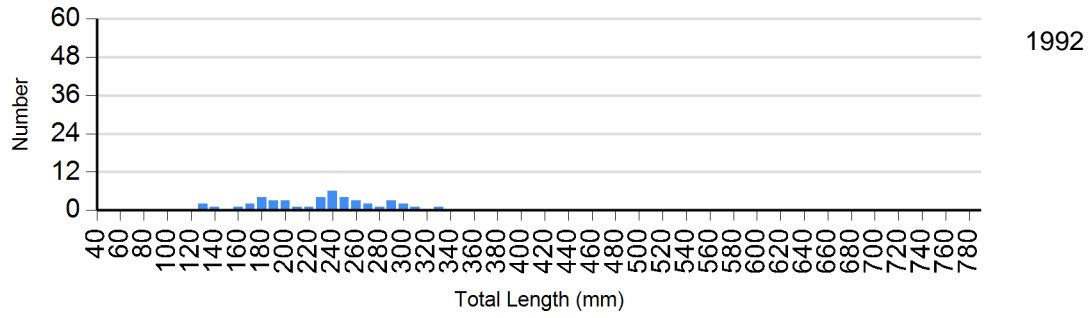
**Site:** 356  
**Species:** Brown Trout



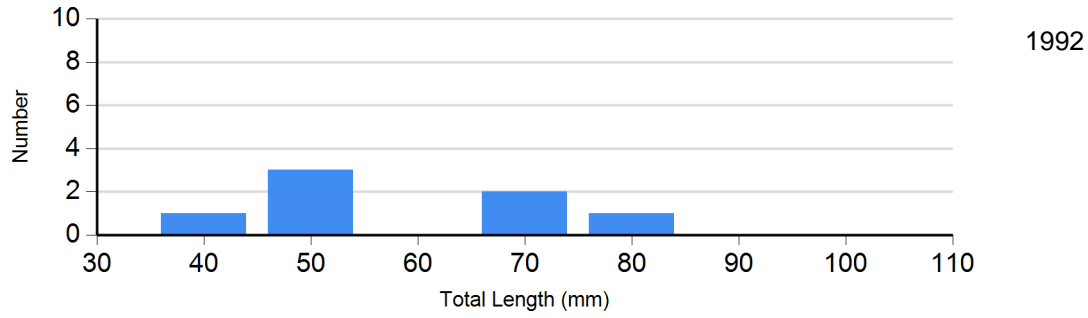
**Site:** 384  
**Species:** Brook Trout



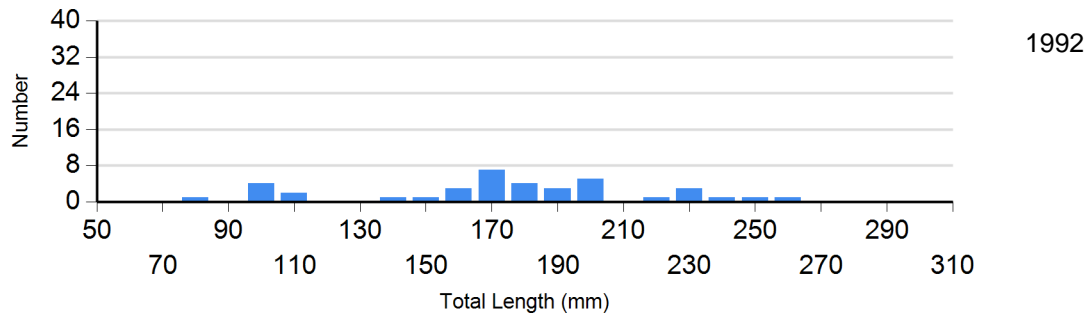
**Site:** 384  
**Species:** Brown Trout



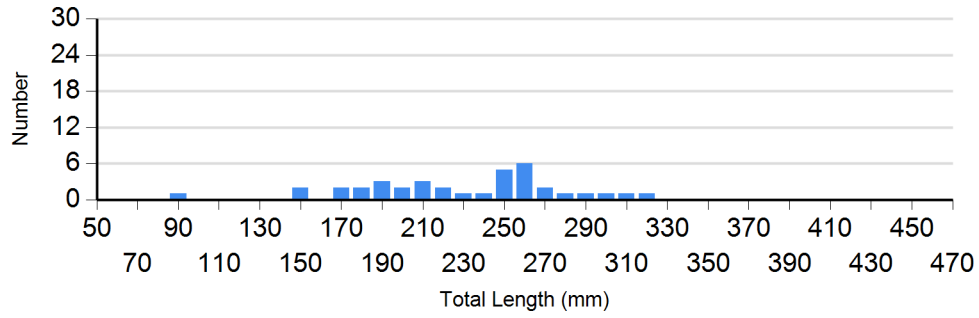
**Site:** 384  
**Species:** White Sucker



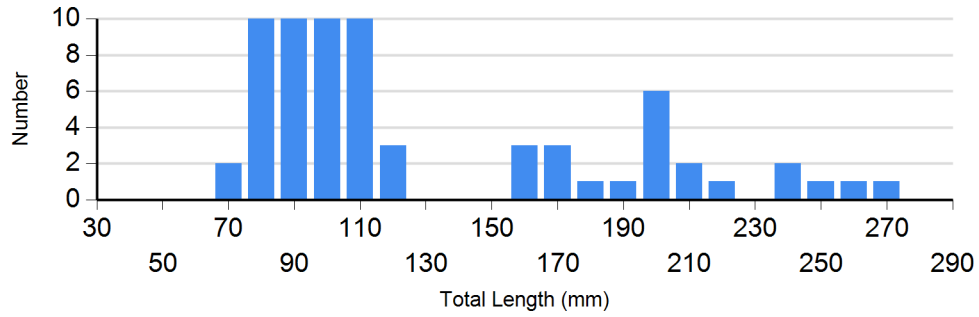
**Site:** 388  
**Species:** Brook Trout



**Site:** 388  
**Species:** Brown Trout



**Site:** 410  
**Species:** Brook Trout



**Site:** 410  
**Species:** Brown Trout

