

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Castle Creek, Pennington County**  
**02-0071-00**  
**2013**

Table 1. Population and Biomass Estimates for Castle Creek

<b>Site Number:</b> 373	<b>Date Sampled:</b> 05/17/2013	<b>Conductivity (umhos/cm):</b> 441
<b>Site Midpoint (Latitude, Longitude):</b> 44.05014956, -103.77144194	<b>Site Length (m):</b> 100	<b>pH:</b> 8.4
<b>Survey Completed by:</b>	<b>Mean Width (m):</b> 6.0	<b>Water Temperature (C):</b> 7.9
<b>Stream Classification:</b> BK1, BR2	<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	53	54	57	53	895	31	540	362	27.56	869	136.7	34.5
Brook Trout	>=200mm	42	42	44	42	696	71	420	282	63.51	676	217.4	102.2
Brook Trout	All	95	97	101	95	1607	104	970	651	92.48	1561	172.4	64.5
Brown Trout	<200mm	33	38	48	33	630	21	380	255	18.50	611	129.8	32.9
Brown Trout	>=200mm	20	20	21	20	331	71	200	134	63.46	322	269.5	214.5
Brown Trout	All	53	57	64	53	944	96	570	382	85.52	917	182.5	101.4

<b>Site Number:</b> 410	<b>Date Sampled:</b> 08/12/2013	<b>Conductivity (umhos/cm):</b>
<b>Site Midpoint (Latitude, Longitude):</b> 44.03214464, -103.77869838	<b>Site Length (m):</b> 100	<b>pH:</b>
<b>Survey Completed by:</b>	<b>Mean Width (m):</b> 5.3	<b>Water Temperature (C):</b>
<b>Stream Classification:</b> BK1, BR1, RB2	<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	46	54	67	46	1026	36	540	415	32.36	869	131.6	35.3
Brook Trout	>=200mm	56	60	67	56	1140	150	600	462	134.29	965	232.7	131.9
Brook Trout	All	102	115	129	102	2185	199	1150	885	178.03	1850	187.1	91.3

Brown Trout	<200mm	82	94	109	82	1786	43	940	723	38.21	1512	129.5	24.0
Brown Trout	>=200mm	54	58	65	54	1102	335	580	446	299.38	933	293.6	304.3
Brown Trout	All	136	153	169	137	2907	400	1530	1177	357.59	2462	194.7	137.8
Rainbow Trout	>=200mm	1	1	1	1	19	9	10	8	8.14	16	361.0	480.0
Rainbow Trout	All	1	1	1	1	19	9	10	8	8.14	16	361.0	480.0

**Site Number:** 417  
**Site Midpoint (Latitude, Longitude):** 44.03016917, -103.78286708  
**Survey Completed by:**  
**Stream Classification:** BK1, BR1

**Date Sampled:** 05/16/2013  
**Site Length (m):** 100  
**Mean Width (m):** 6.3  
**Number of Pass:** 3  
**Conductivity (umhos/cm):** 437  
**pH:** 8.1  
**Water Temperature (C):** 5.6  
**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	96	130	169	96	2061	87	1300	835	77.33	2092	154.5	42.0
Brook Trout	>=200mm	169	182	194	170	2885	346	1820	1168	309.10	2928	235.8	120.0
Brook Trout	All	265	302	327	277	4787	439	3020	1939	392.17	4859	206.3	91.8
Brown Trout	<200mm	18	17	22	18	269	9	170	109	8.10	274	128.1	33.7
Brown Trout	>=200mm	46	46	48	46	729	179	460	295	159.52	740	281.2	245.0
Brown Trout	All	64	70	79	64	1110	206	700	449	183.86	1126	238.1	185.6
White Sucker	All	5	5	7	5	79	7	50	32	6.59	80	198.8	93.2

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, 2003-2013

**Site 373**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 24, 2003	32	31-35	
	Sep 29, 2004	44	44-44	
	Sep 17, 2007	57	50-68	
	Sep 23, 2008	41	41-42	
	Aug 15, 2012	79	79-80	
	May 17, 2013	54	53-57	
Brook Trout >=200mm	Sep 24, 2003	4	4-7	BK2

Brook Trout >=200mm	Sep 29, 2004	7	7-7	BK2
	Sep 17, 2007	2	2-3	BK3
	Sep 23, 2008	7	7-8	BK2
	Aug 15, 2012	24	24-25	BK1
	May 17, 2013	42	42-44	BK1
Brown Trout <200mm	Sep 24, 2003	54	48-64	
	Sep 29, 2004	138	137-141	
	Sep 17, 2007	31	26-42	
	Sep 23, 2008	30	27-37	
	Aug 15, 2012	27	27-28	
	May 17, 2013	38	33-48	
Brown Trout >=200mm	Sep 24, 2003	32	32-32	BR1
	Sep 29, 2004	28	28-28	BR1
	Sep 17, 2007	15	15-16	BR2
	Sep 23, 2008	13	13-14	BR2
	Aug 15, 2012	23	23-24	BR1

Brown Trout >=200mm	May 17, 2013	20	20-21	BR2
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**Site 410**

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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	Aug 12, 2013	54	46-67	
Brook Trout >=200mm	Aug 12, 2013	60	56-67	BK1
Brown Trout <200mm	Aug 12, 2013	94	82-109	
Brown Trout >=200mm	Aug 12, 2013	58	54-65	BR1
Rainbow Trout >=200mm	Aug 12, 2013	1	1-1	RB2

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**Site 417**

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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	Sep 30, 2004	98	95-103	
	Sep 20, 2006	73	72-76	
	Jun 18, 2009	32	30-38	
	Jun 08, 2012	381	117-960	
	May 16, 2013	130	96-169	
Brook Trout >=200mm	Sep 30, 2004	122	122-123	BK1
	Sep 20, 2006	93	92-96	BK1

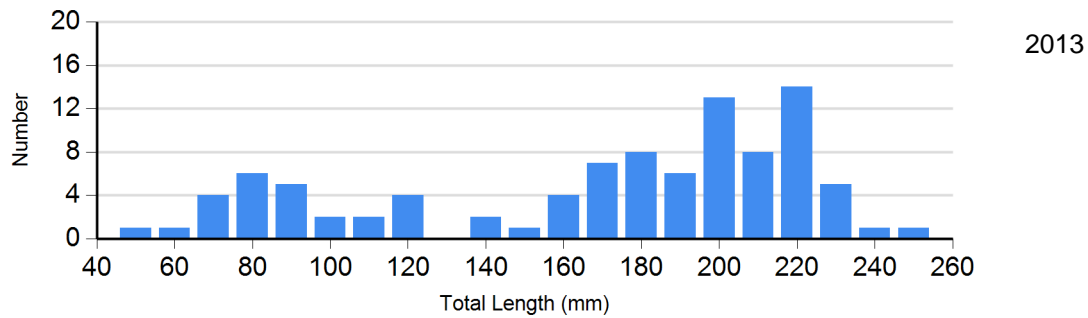
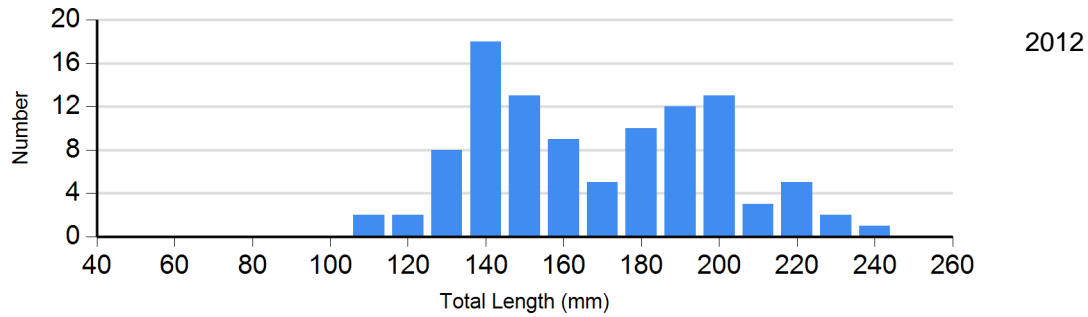
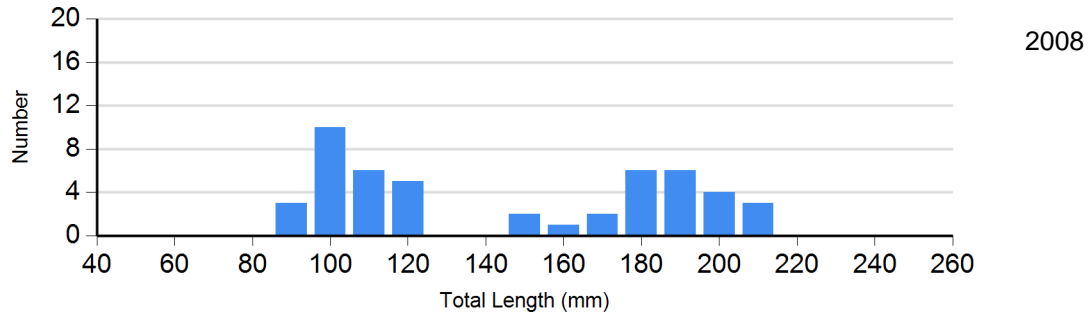
Brook Trout >=200mm	Jun 18, 2009	12	12-12	BK2
	Jun 08, 2012	236	221-251	BK1
	May 16, 2013	182	170-194	BK1
Brown Trout <200mm	Sep 30, 2004	11	11-11	
	Sep 20, 2006	50	50-52	
	Jun 18, 2009	35	26-55	
	Jun 08, 2012	6	6-7	
	May 16, 2013	17	18-22	
Brown Trout >=200mm	Sep 30, 2004	18	18-19	BR2
	Sep 20, 2006	39	39-40	BR1
	Jun 18, 2009	16	16-17	BR2
	Jun 08, 2012	30	29-33	BR1
	May 16, 2013	46	46-48	BR1
White Sucker	Jun 08, 2012	6	6-9	
	May 16, 2013	5	5-7	

## Length Frequency Distribution

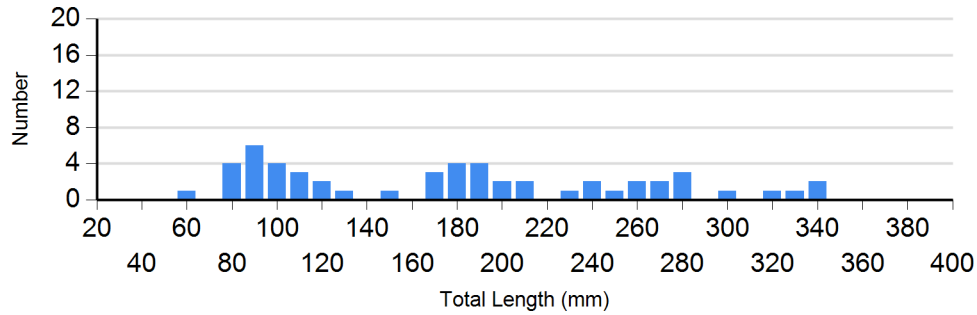
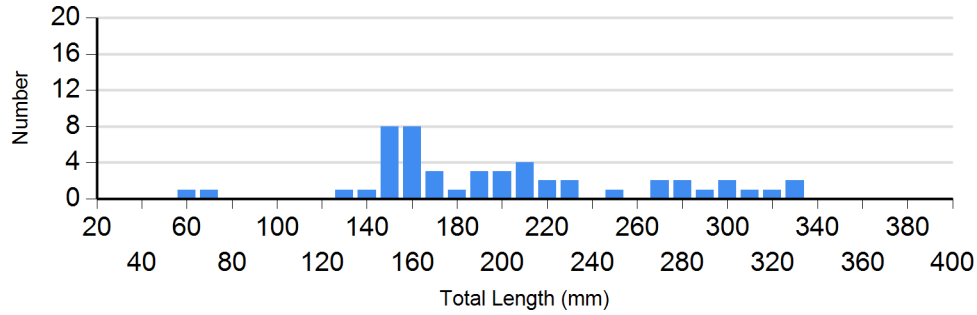
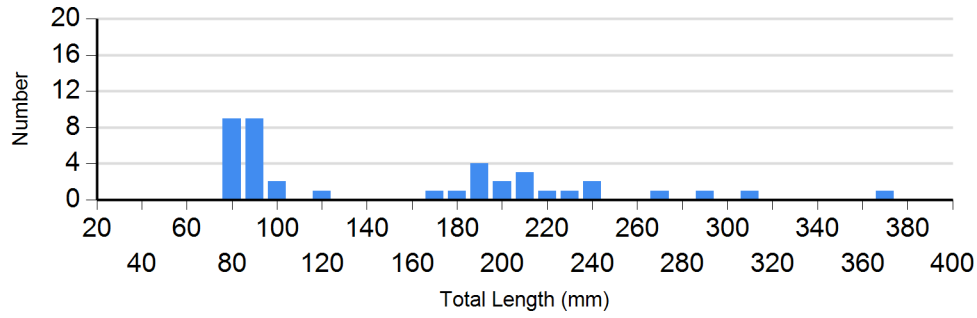
Length frequency histogram of species sampled by year.

**Site:** 373

**Species:** Brook Trout

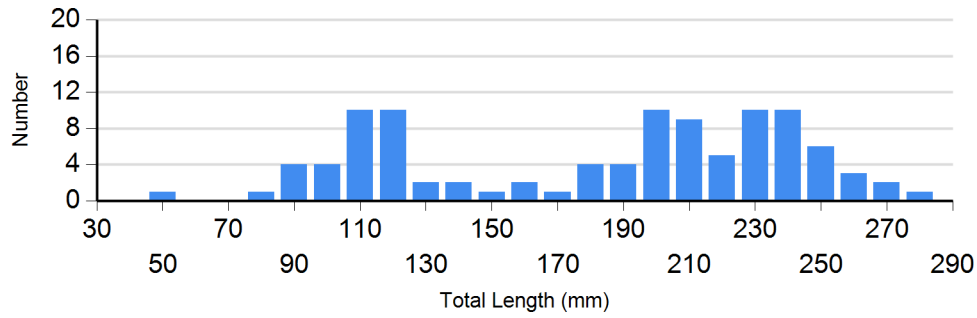


Site: 373  
Species: Brown Trout



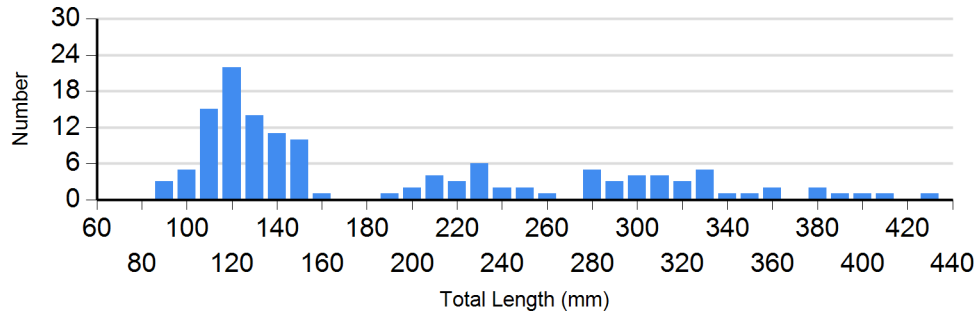


**Site:** 410  
**Species:** Brook Trout



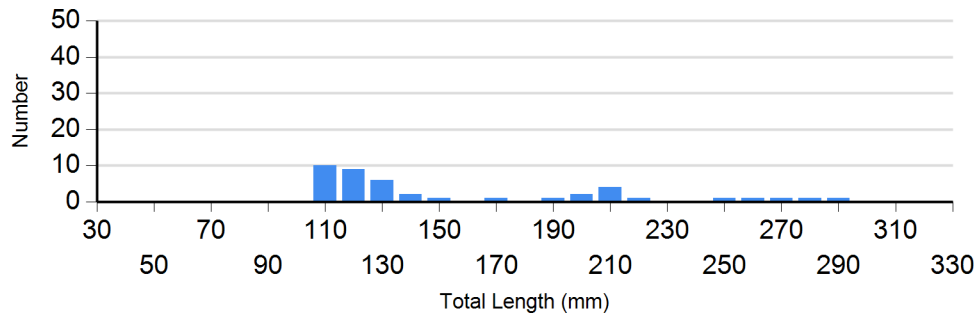
2013

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

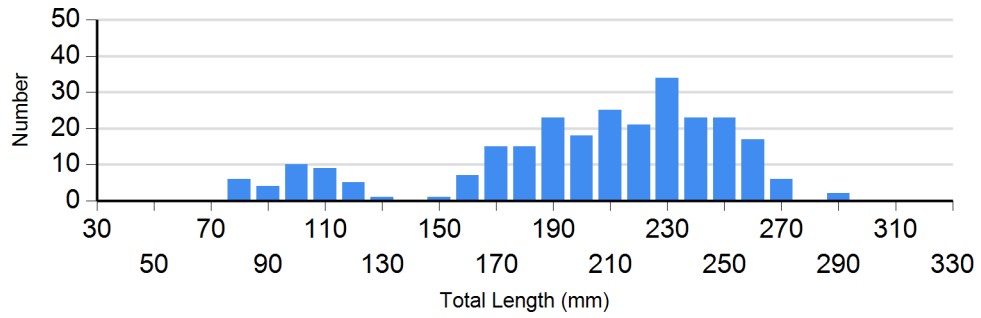
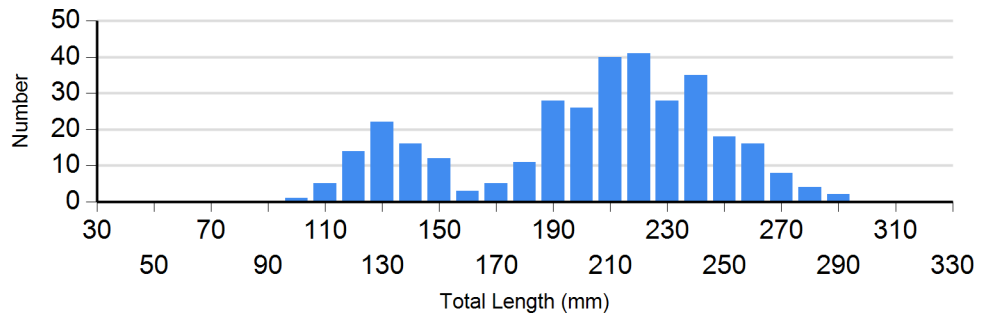


2013

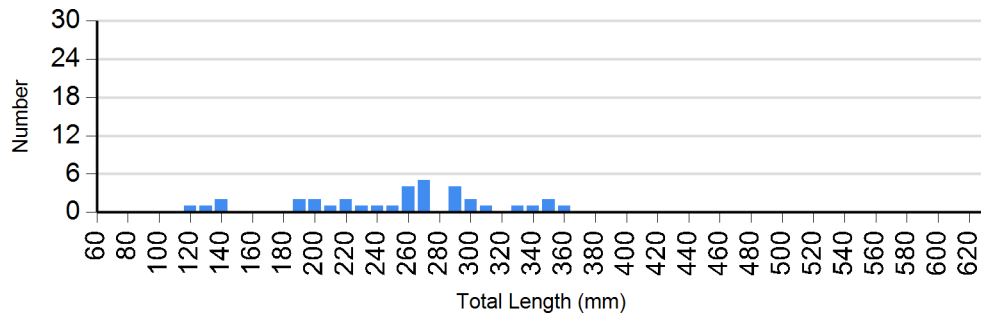
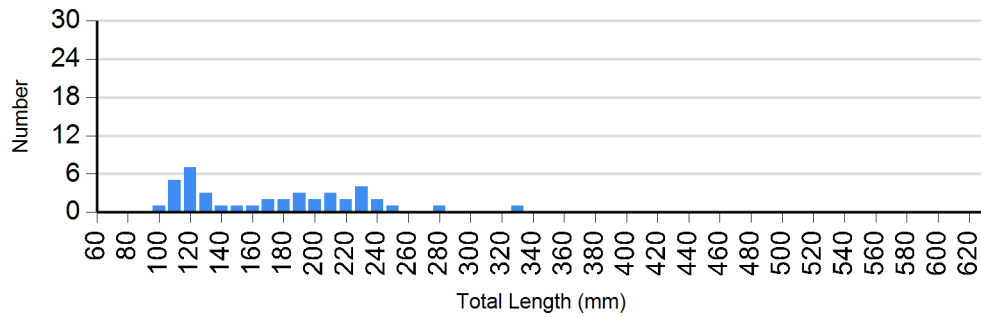
**Site:** 417  
**Species:** Brook Trout

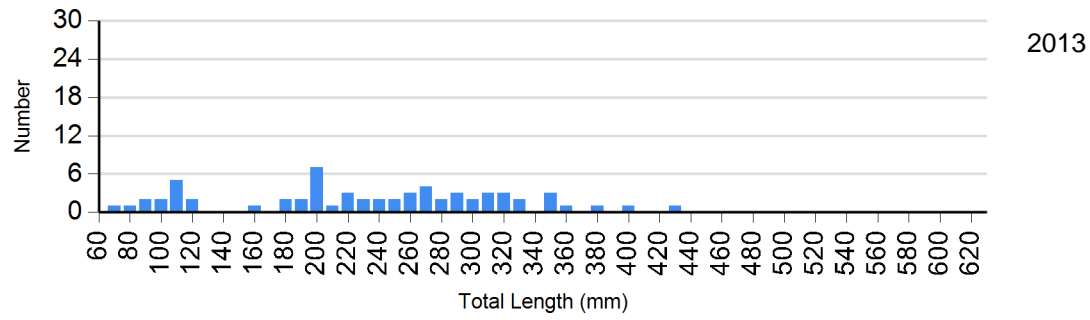


2009



Site: 417  
Species: Brown Trout





Site: 417  
Species: White Sucker

