## SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY

Spring Creek (Trib. of Cheyenne), Pennington County

02-0061-00

2017

Table 1. Population and Biomass Estimates for Spring Creek (Trib. of Cheyenne)

Site Number: 1885	Date Sampled: 06/27/	
Site Midpoint (Latitude, Longitude): 43.98085728, -103.44241913	Site Length (m):	(umhos/cm):
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 9.1	pH:
Stream Classification: BR3, RB2		
	Number of Pass: 3	Voltage:

Species	Size Class	Total Number Captured	Est. # in site	Upper 95% Cl	Lower 95% Cl	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
Brown Trout	>=200mm	12	14	21	12	0	0	0	0	0.00	0	281.3	235.8
Brown Trout	All	12	14	21	12	0	0	0	0	0.00	0	281.3	235.8
Creek Chub	All	300	359	395	323	0	0	0	0	0.00	0	82.7	88.8
Rainbow Trout	>=200mm	6	6	6	6	0	0	0	0	0.00	0	298.0	264.0
Rainbow Trout	All	6	6	6	6	0	0	0	0	0.00	0	298.0	264.0
Rock Bass	All	117	126	136	117	0	0	0	0	0.00	0	74.9	51.6
Smallmouth Bass	All	1	1	1	1	0	0	0	0	0.00	0	115.0	19.0
White Sucker	All	101	101	103	101	0	0	0	0	0.00	0	200.7	143.8

Site Number: 1994

Site Midpoint (Latitude, Longitude): 43.94382220, -103.51348180 Survey Completed by: South Dakota Game, Fish and Parks Stream Classification: BR3, RB2 Date Sampled:08/15/2017Conductivity<br/>(umhos/cm):Site Length (m):100pH:Mean Width (m):0.0Water Temperature (C):Number of Pass:3Voltage:250

Size Class	Total Number Captured	Est. # in site	Upper 95% Cl	Lower 95% Cl	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
>=200mm	2	2	2	2	0	0	20	0	0.00	32	353.0	437.5
All	2	2	2	2	0	0	20	0	0.00	32	353.0	437.5
All	78	130	205	78	0	0	1300	0	0.00	2092	85.7	18.5
All	1	1	5	1	0	0	10	0	0.00	16	119.0	17.0
>=200mm	1	1	2	1	0	0	10	0	0.00	16	235.0	133.0
All	1	1	2	1	0	0	10	0	0.00	16	235.0	133.0
All	26	27	30	26	0	0	270	0	0.00	434	73.6	20.0
All	290	307	320	294	0	0	3070	0	0.00	4940	111.0	20.8
Latitude, L eted by: So	outh Dakota					Site Len Mean Wi	gth (m): idth (m):	1.2	(um pH: Wat	hos/cm): er Temper		
Size Class	Total Number Captured	Est. # in site	Upper 95% Cl	Lower 95% Cl	# per Hectacre	Kg per Hectacre	# per Km	# per Acre	lb. per Acre	# per Mile	Mean Length (mm)	Mean Weight (grams)
<200mm	98	102	108	98	8835	183	1020	3578	163.83	1641	97.4	20.8
All	100	106	114	100	9181	191	1060	3718	170.26	1706	97.4	20.8
	Class >=200mm All All All >=200mm All All All 2439 Latitude, L eted by: So fication: Bh Size Class <200mm	Size ClassNumber Captured>=200mm2All2All78All1>=200mm1All1>=200mm1All26All2902439290Latitude, Longitude): eted by: South Dakota fication: BK0Size ClassTotal Number Captured<200mm	Size ClassNumber CapturedEst. # in site>=200mm22All22All22All78130All11>=200mm11All11All2627All2903072439Latitude, Longitude):43.9053720Latitude, Longitude):43.9053720eted by:South DakotaGame, FishTotal ClassTotal Number CapturedEst. # in site<200mm	Size Class Number Captured Est. # in site Opper 95% Cl   >=200mm 2 2 2   All 2 2 2   All 2 2 2   All 78 130 205   All 1 1 5   >=200mm 1 1 2   All 1 1 2   All 1 1 2   All 1 1 2   All 26 27 30   All 290 307 320   Particle South Dakota Game, Fish and Parks   Particular Total Number Captured Est. # in site Upper 95% Cl   South Dakota Game, Fish and Parks   Size Total Number Captured Est. # in site Upper 95% Cl   <200mm	Size Class Number Captured Est. # in site Upper 95% CI Lower 95% CI   >=200mm 2 2 2 2 2   All 2 2 2 2 2   All 78 130 205 78   All 1 1 5 1   >=200mm 1 1 2 1   All 26 27 30 26   All 290 307 320 294   Particule: 43.90537261, -103.74603404   Est. # in Upper Lower   With Dakota Game, Fish and Parks Total Size Visition: BK0 Size 95% CI   Size Total Size Upper Lower 95% CI   Size 108 98 98<	Size Class Number Captured Est. # in site Upper 95% CI Lower 95% CI # per Hectacre   >=200mm 2 2 2 0   All 2 2 2 0   All 78 130 205 78 0   All 1 1 5 1 0   >=200mm 1 1 2 1 0   All 26 27 30 26 0   All 290 307 320 294 0   Parks   Total Sumber, Fish and Parks   South Dakota Game, Fish and Parks   itation: BK0   Size Total Est. # in site Upper 95% CI Lower 95% CI <th# per<br="">95% CI   &lt;200m</th#>	Size Class Number Aptured Est. # in site Opper 95% CI Lower 95% CI # per Hectacre Kg per Hectacre   >=200mm 2 2 2 2 0 0   All 2 2 2 2 0 0   All 78 130 205 78 0 0   All 1 1 5 1 0 0   All 1 1 2 1 0 0   All 1 1 2 1 0 0   All 1 1 2 0 0 0   All 26 27 30 26 0 0   All 290 307 320 294 0 0   2439 Latitude, Longitude): 43.90537261, -103.74603404 Mean Wi Mean Wi   rication: BK0 Total Site Line Mean Wi   Size Total Site	Size Class Number Captured Est. # in site Upper 95% Cl Lower 95% Cl # per Hectacre Kg per Hectacre # per Km   >=200mm 2 2 2 2 0 0 20   All 2 2 2 2 0 0 20   All 78 130 205 78 0 0 1300   All 1 1 5 1 0 0 10   >=200mm 1 1 2 1 0 0 10   All 1 1 2 1 0 0 10   All 26 27 30 26 0 0 3070   2439 2439 Jatitude, Longitude): 43.90537261, -103.74603404 Site Length (m): Mean Width (m): Number of Pass: Mean Width (m): Number of Pass:   size Total Number Est. # in site Upper 95% Cl Lower 95% Cl # per Hectacre Kg per Hectacre # per Km	Size Class Number Captured Est. # in site Opper 95% Cl Lower 95% Cl # per Hectacre Kg per Hectacre # per Km # per Acre   >=200mm 2 2 2 0 0 20 0   All 2 2 2 2 0 0 20 0   All 78 130 205 78 0 0 1300 0   All 1 1 5 1 0 0 10 0   All 1 1 2 1 0 0 10 0   All 1 1 2 1 0 0 10 0   All 26 27 30 26 0 0 3070 0   2439 Latitude, Longitude): 43.90537261, -103.74603404 Est Bamplet: 08/09/2017 Site Length (m): 1.2 Number of Pass: 3   Size Total Case Est. # in Site Upper Site Lower Site # per	Size Class Number Captured Est. # in site Opper 95% CI Lower 95% CI # per Hectacre Kg per Hectacre # per Kg per Hectacre # per Kg per Hectacre # per Kg per Kg per Hectacre # per Acre # per Acre # per Acre   >=200mm 2 2 2 2 0 0 20 0 0.00   All 2 2 2 0 0 1300 0 0.00   All 1 1 5 1 0 0 100 0.00   All 1 2 1 0 0 10 0 0.00   All 1 2 1 0 0 10 0 0.00   All 26 27 30 26 0 0 3070 0 0.00   All 290 307 320 294 0 0 3070 0 0.00   2439 Latitude, Longitude): 43.90537261, -103.74603404 Est. # in Number of Pass: 3	Size Class Number Captured Est. # in site Opper 95% Cl Lower Hectacre # per Hectacre # per Km # per Acre # per Acre # per Mile   >=200mm 2 2 2 2 0 0 20 0 0.00 32   All 2 2 2 2 0 0 20 0 0.00 32   All 78 130 205 78 0 0 1300 0 0.00 2092   All 1 1 5 1 0 0 10 0 0.00 16   >=200mm 1 1 2 1 0 0 10 0.00 16   All 1 2 1 0 0 270 0 0.00 434   All 290 307 320 294 0 0 3070 0 0.00 434   All 290 307 320.74	Size Class Number Site Est. # in 95% Cl Upper 95% Cl Her Per Hectacre Kg per Hectacre # per Km # per Acre # per Acre # per Mile Length (mm)   >=200mm 2 2 2 2 0 0 20 0 0.00 32 353.0   All 2 2 2 2 0 0 200 0.000 32 353.0   All 78 130 205 78 0 0 1300 0 0.00 20292 85.7   All 1 1 5 1 0 0 10 0.00 16 235.0   All 1 1 2 1 0 0 10 0.00 16 235.0   All 26 27 30 26 0 0 3070 0.00 434 73.6   All 290 307 320 294 0 0 3070 0.00

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 BrookTrout 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 Spring Creek (Trib. of Cheyenne), 2007-2017

## Site 1885

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout >=200mm	Aug 16, 2011	18	18-18	BR2
	Jun 27, 2017	14	12-21	BR3
Creek Chub	Jul 24, 2009	35	35-35	
	Jun 27, 2017	359	323-395	
Rainbow Trout <200mm	Aug 16, 2011	9	9-10	
Rainbow Trout >=200mm	Jul 24, 2009	3	3-3	RB2
	Jun 27, 2017	6	6-6	RB2

Rock Bass	Jul 24, 2009	1	1-1	
	Jun 27, 2017	126	117-136	
Smallmouth Bass	Jun 27, 2017	1	1-1	
White Sucker	Jul 24, 2009	30	30-30	
	Aug 16, 2011	41	40-45	
	Jun 27, 2017	101	101-103	

Site 1994

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout >=200mm	Oct 14, 2015	1	1-2	BK3
Brown Trout >=200mm	Oct 14, 2015	3	3-4	BR2
	Jun 27, 2016	1	1-2	BR3
	Aug 15, 2017	2	2-2	BR3
Creek Chub	Oct 14, 2015	25	25-26	
	Aug 15, 2017	130	78-205	
Longnose Dace	Jun 27, 2016	21	16-36	
Mountain Sucker	Aug 15, 2017	1	1-5	

Spaciac/Siza	Data	Pop Est	(05% C1)	Stream Classification
Site 2439				
	Aug 15, 2017	307	294-320	
White Sucker	Jun 27, 2016	10	9-15	
	Aug 15, 2017	27	26-30	
	Jun 27, 2016	3	3-4	
Rock Bass	Oct 14, 2015	8	8-10	
	Aug 15, 2017	1	1-2	RB2
Rainbow Trout >=200mm	Oct 14, 2015	4	4-4	RB1

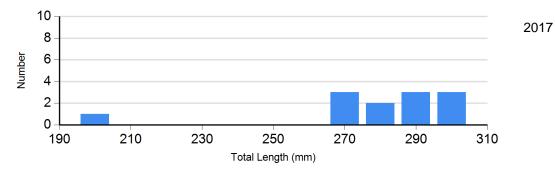
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 27, 2009	7	7-7	
	Jun 23, 2014	25	25-25	
	Jun 22, 2016	47	47-48	
	Aug 09, 2017	102	98-108	
Brook Trout >=200mm	Jun 23, 2014	1	1-1	BK2
	Jun 22, 2016	3	3-3	BK2

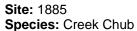
## **Length Frequency Distribution**

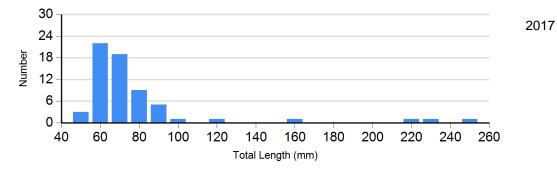
Length frequency histogram of species sampled by year.

## Site: 1885

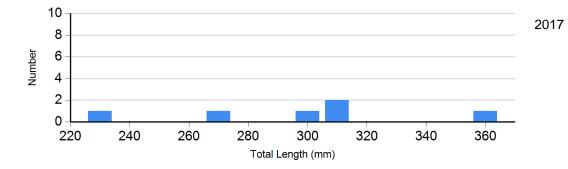
Species: Brown Trout

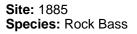


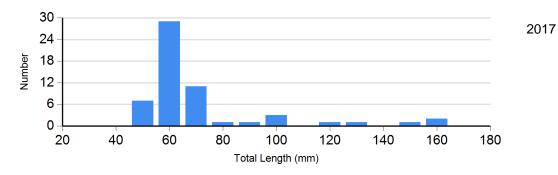




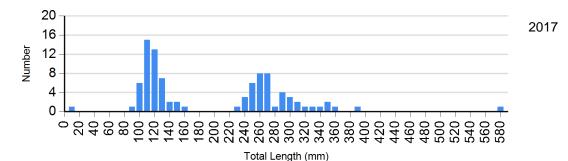




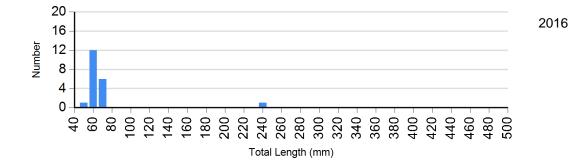


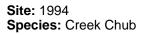


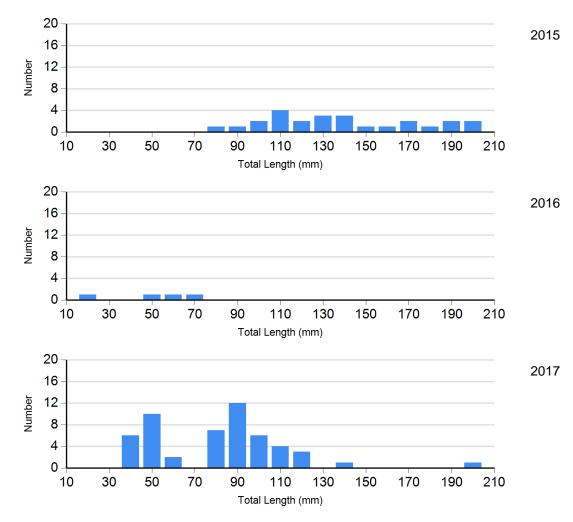
Site: 1885 Species: White Sucker



Site: 1994 Species: Brown Trout

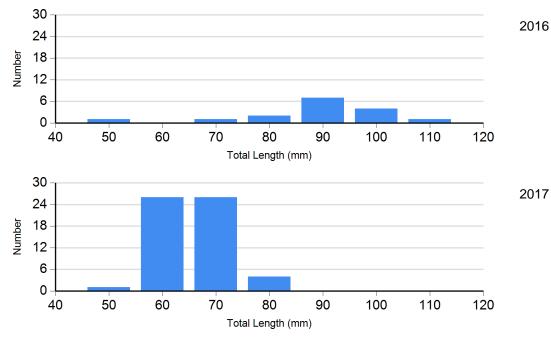




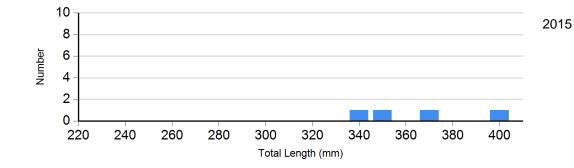


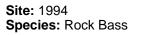
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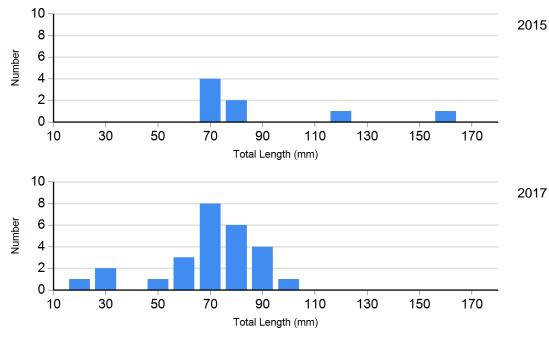




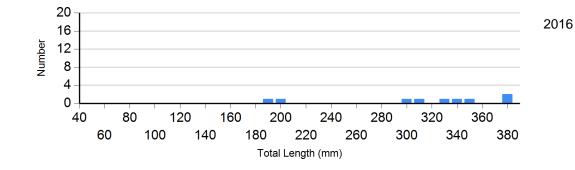
Site: 1994 Species: Rainbow Trout

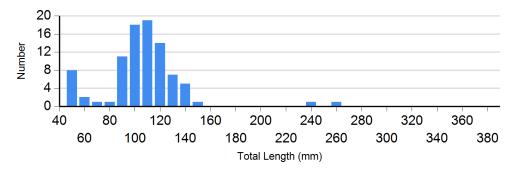




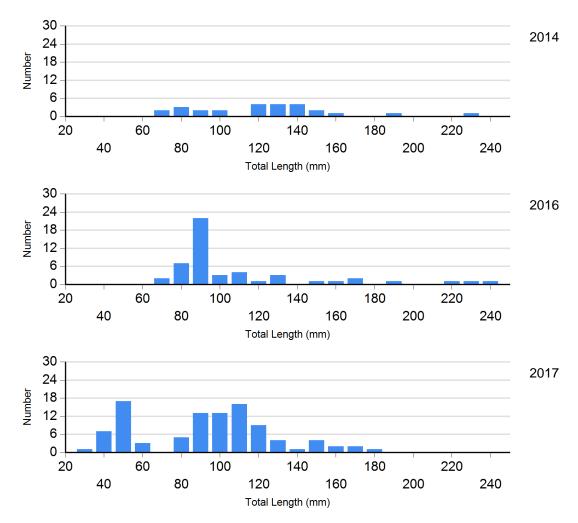


Site: 1994 Species: White Sucker





Site: 2439 Species: Brook Trout



2017