

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Spearfish Creek, Lawrence County
09-0021-00
2005

Table 1. Population and Biomass Estimates for Spearfish Creek

Site Number: 130	Date Sampled: 07/08/2005	Conductivity (umhos/cm): 370
Site Midpoint (Latitude, Longitude): 44.53105790, -103.86894580	Site Length (m): 95	pH: 9.1
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 7.3	Water Temperature (C): 21.0
Stream Classification: BR2	Number of Pass: 3	Voltage: 250

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)
Brown Trout	<200mm	30	30	31	30	414	13	316	167	11.89	508	123.5	32.2
Brown Trout	>=200mm	8	8	10	8	110	36	84	45	31.80	135	295.4	323.0
Brown Trout	All	189	195	202	189	2688	251	2053	1089	224.21	3303	159.7	93.4
Longnose Dace	All	1	1	1	1	14	0	11	6	0.01	17	48.0	1.0
Longnose Sucker	All	44	47	53	44	648	16	495	262	14.19	796	95.6	24.5
White Sucker	All	34	39	49	34	538	132	411	218	117.62	661	181.8	245.0

Site Number: 130	Date Sampled: 09/29/2005	Conductivity (umhos/cm): 650
Site Midpoint (Latitude, Longitude): 44.53105790, -103.86894580	Site Length (m): 100	pH: 9.3
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 5.2	Water Temperature (C): 14.5
Stream Classification: BR0	Number of Pass: 3	Voltage: 200

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)
Brown Trout	<200mm	44	47	53	44	909	10	470	368	9.05	756	101.5	11.2
Brown Trout	All	44	47	53	44	909	10	470	368	9.05	756	101.5	11.2

Longnose Sucker	All	37	37	37	37	715	19	370	290	16.90	595	74.9	26.5
WAS?	All	11	11	11	11	213	1	110	86	0.49	177	58.0	2.6
White Sucker	All	81	81	81	81	1566	72	810	634	64.50	1303	71.6	46.1

Site Number: 174

Site Midpoint (Latitude, Longitude): 44.50196266, -103.86743501

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1

Date Sampled: 10/03/2005

Site Length (m): 100

Mean Width (m): 6.6

Number of Pass: 3

Conductivity (umhos/cm): 300

pH: 9.2

Water Temperature (C): 9.5

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)
Brown Trout	<200mm	51	54	60	51	814	17	540	330	14.89	869	115.0	20.5
Brown Trout	>=200mm	96	96	98	96	1447	389	960	586	347.66	1545	296.5	269.2
Brown Trout	All	147	150	155	147	2260	413	1500	915	369.10	2414	233.5	182.9

Site Number: 205

Site Midpoint (Latitude, Longitude): 44.47880965, -103.85669154

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR2, RB2

Date Sampled: 10/03/2005

Site Length (m): 100

Mean Width (m): 10.2

Number of Pass: 3

Conductivity (umhos/cm): 297

pH: 9.3

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)
Brown Trout	<200mm	159	165	172	159	1619	15	1650	656	13.69	2655	94.7	9.5
Brown Trout	>=200mm	37	37	38	37	363	110	370	147	98.03	595	298.5	302.4
Brown Trout	All	197	203	210	197	1992	129	2030	807	115.20	3266	133.2	64.8
Rainbow Trout	>=200mm	1	1	2	1	10	1	10	4	1.08	16	221.0	123.0
Rainbow Trout	All	1	1	2	1	10	1	10	4	1.08	16	221.0	123.0

Site Number: 320
Site Midpoint (Latitude, Longitude): 44.41218297, -103.88972908
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK3, BR1

Date Sampled: 09/28/2005 **Conductivity (umhos/cm):** 650
Site Length (m): 100 **pH:** 9.3
Mean Width (m): 5.2 **Water Temperature (C):** 14.5
Number of Pass: 3 **Voltage:** 200

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	1	1	1	1	19	2	10	8	1.64	16	205.0	95.0
Brook Trout	All	1	1	1	1	19	2	10	8	1.64	16	205.0	95.0
Brown Trout	<200mm	334	353	366	340	6824	110	3530	2764	98.29	5680	102.1	16.1
Brown Trout	>=200mm	39	39	40	39	754	116	390	305	103.52	628	237.5	153.8
Brown Trout	All	373	392	405	379	7578	231	3920	3069	206.53	6307	116.3	30.5

Site Number: 418
Site Midpoint (Latitude, Longitude): 44.36357703, -103.92915307
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR1

Date Sampled: 09/28/2005 **Conductivity (umhos/cm):** 295
Site Length (m): 100 **pH:** 9.1
Mean Width (m): 7.2 **Water Temperature (C):** 8.5
Number of Pass: 3 **Voltage:** 250

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)
Brown Trout	<200mm	161	190	215	165	2639	47	1900	1069	42.15	3057	110.0	17.9
Brown Trout	>=200mm	38	39	42	38	542	80	390	219	71.73	628	240.9	148.3
Brown Trout	All	199	228	250	206	3167	136	2280	1283	121.00	3669	135.0	42.8

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 Brook Trout 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 Spearfish Creek, 1995-2005

Site 130

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Aug 19, 1998	326	137-609	
	Jul 08, 2005	30	30-31	
	Sep 29, 2005	47	44-53	
Brown Trout >=200mm	Aug 19, 1998	53	28-121	BR1
	Jul 08, 2005	8	8-10	BR2
Longnose Dace	Aug 19, 1998	42	43-56	
	Jul 08, 2005	1	1-1	

Longnose Sucker	Aug 19, 1998	164	147-181
	Jul 08, 2005	47	44-53
	Sep 29, 2005	37	37-37
WAS?	Sep 29, 2005	11	11-11
White Sucker	Aug 19, 1998	25	26-33
	Jul 08, 2005	39	34-49
	Sep 29, 2005	81	81-81

Site 174

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 31, 1995	80	71-92	
	Oct 07, 1996	106	96-118	
	Oct 03, 2005	54	51-60	
Brown Trout >=200mm	Oct 31, 1995	74	73-77	BR1
	Oct 07, 1996	71	69-75	BR1
	Oct 03, 2005	96	96-98	BR1

Site 205

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 31, 1995	4	4-4	
	Oct 07, 1996	4	4-5	
	Oct 14, 1998	1	1-2	
Brown Trout <200mm	Oct 31, 1995	31	29-36	
	Oct 07, 1996	1085	806-1364	
	Oct 14, 1998	124	125-141	
	Oct 26, 1999	338	239-437	
	Oct 03, 2005	165	159-172	
Brown Trout >=200mm	Oct 31, 1995	68	68-69	BR1
	Oct 07, 1996	60	61-72	BR1
	Oct 14, 1998	147	144-152	BR1
	Oct 26, 1999	73	73-75	BR1
	Oct 03, 2005	37	37-38	BR2
Rainbow Trout <200mm	Oct 31, 1995	8	4-42	
	Oct 07, 1996	6	6-7	

Rainbow Trout <200mm	Oct 14, 1998	1	1-1	
	Oct 26, 1999	14	14-16	
Rainbow Trout >=200mm	Oct 31, 1995	1	1-1	RB2
	Oct 03, 2005	1	1-2	RB2

Site 320

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout >=200mm	Sep 28, 2005	1	1-1	BK3
Brown Trout <200mm	Sep 28, 2005	353	340-366	
Brown Trout >=200mm	Sep 28, 2005	39	39-40	BR1

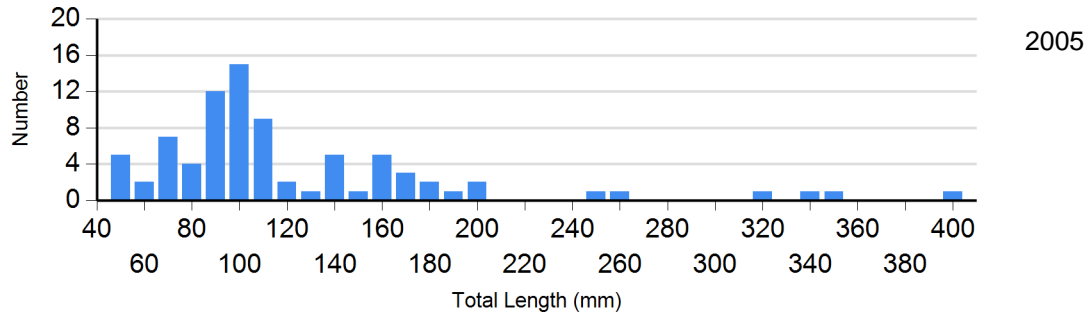
Site 418

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout >=200mm	Jun 17, 1998	1	1-1	BK3
Brown Trout <200mm	Jun 17, 1998	137	111-164	
	Oct 06, 2004	73	64-86	
	Sep 28, 2005	190	165-215	
Brown Trout >=200mm	Jun 17, 1998	70	60-84	BR1
	Oct 06, 2004	117	114-122	BR1

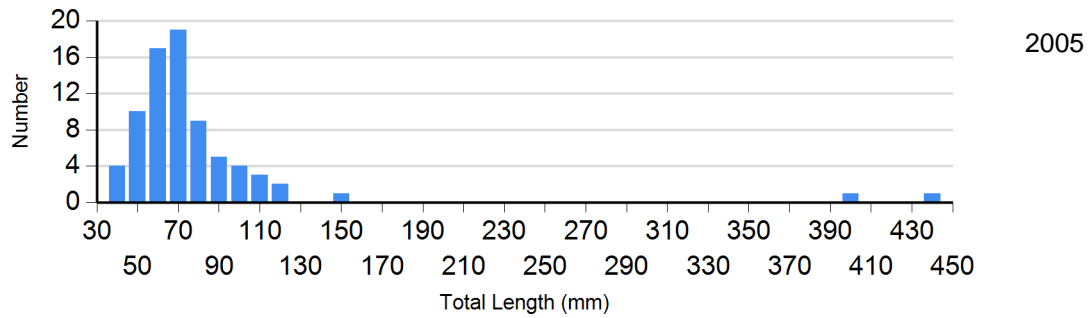
Length Frequency Distribution

Length frequency histogram of species sampled by year.

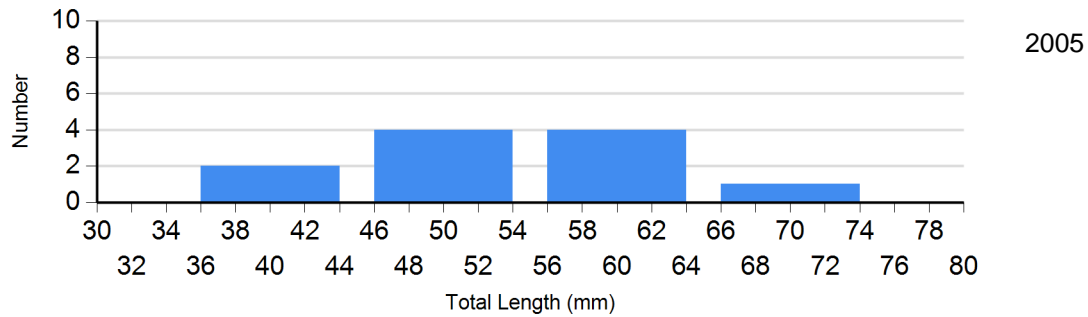
Site: 130
Species: Brown Trout



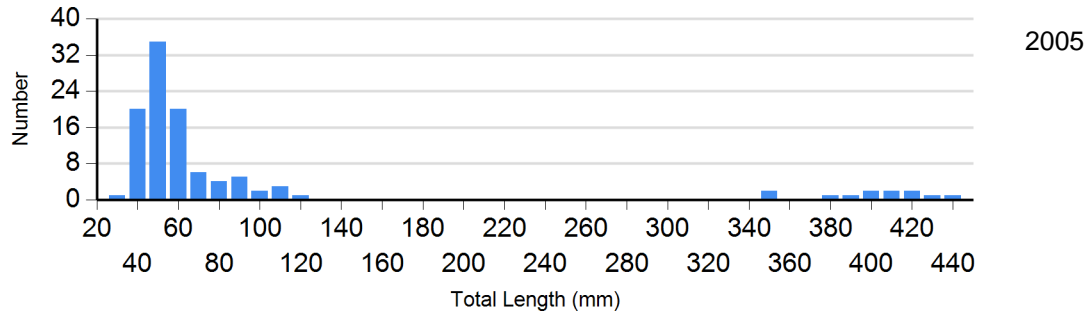
Site: 130
Species: Longnose Sucker



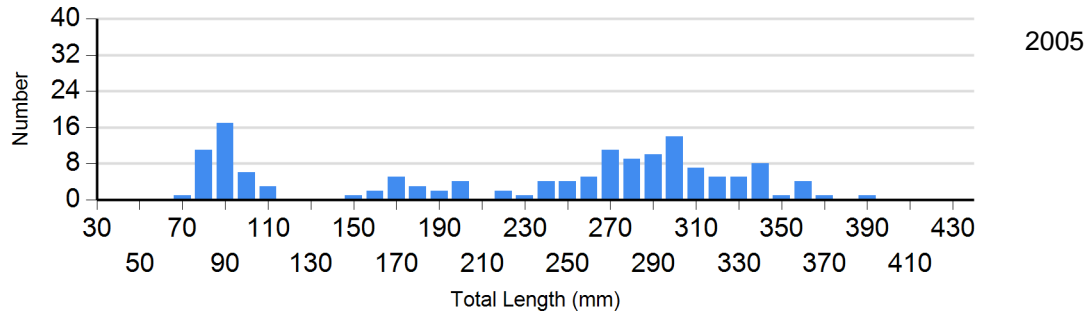
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Species: WAS?



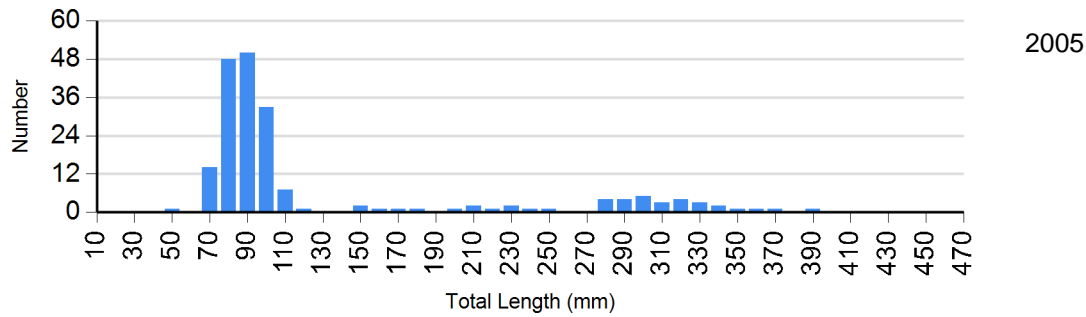
Site: 130
Species: White Sucker



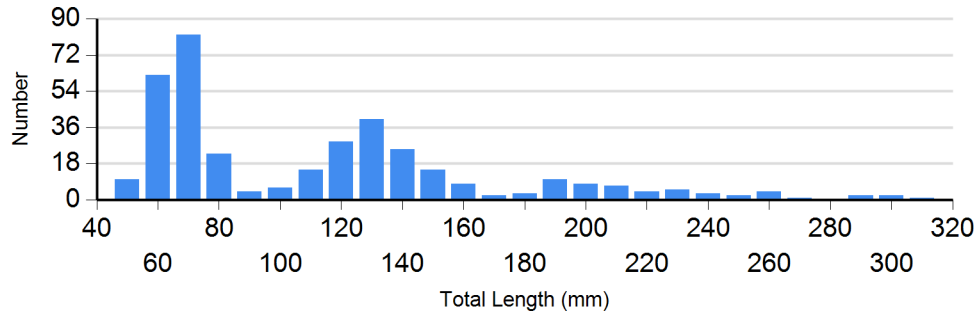
Site: 174
Species: Brown Trout



Site: 205
Species: Brown Trout



Site: 320
Species: Brown Trout



Site: 418
Species: Brown Trout

