

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Cleopatra Creek, Lawrence County**  
**09-0055-00**  
**2000**

Table 1. Population and Biomass Estimates for Cleopatra Creek

<b>Site Number:</b> 4	<b>Date Sampled:</b> 09/20/2000	<b>Conductivity (umhos/cm):</b>
<b>Site Midpoint (Latitude, Longitude):</b> 44.39921369, -103.89223587	<b>Site Length (m):</b> 100	<b>pH:</b>
<b>Survey Completed by:</b> KNK Aquatic Ecology	<b>Mean Width (m):</b> 5.1	<b>Water Temperature (C):</b> 10.0
<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	524	602	639	565	11758	233	6020	4762	208.24	9686	113.1	19.8
Brook Trout	>=200mm	9	9	10	9	176	14	90	71	12.64	145	205.6	80.6
Brook Trout	All	533	611	648	574	11934	249	6110	4833	222.28	9831	114.6	20.9

<b>Site Number:</b> 45	<b>Date Sampled:</b> 09/15/2000	<b>Conductivity (umhos/cm):</b>
<b>Site Midpoint (Latitude, Longitude):</b> 44.37686389, -103.86595601	<b>Site Length (m):</b> 100	<b>pH:</b>
<b>Survey Completed by:</b> KNK Aquatic Ecology	<b>Mean Width (m):</b> 2.2	<b>Water Temperature (C):</b> 11.7
<b>Stream Classification:</b> BK1	<b>Number of Pass:</b> 3	<b>Voltage:</b> 400

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	425	441	452	430	20417	488	4410	8269	435.57	7096	121.6	23.9
Brook Trout	>=200mm	10	10	11	10	463	45	100	188	40.14	161	210.2	97.1
Brook Trout	All	435	452	464	440	20926	535	4520	8475	477.95	7273	123.6	25.6

<b>Site Number:</b> 53	<b>Date Sampled:</b> 09/15/2000	<b>Conductivity (umhos/cm):</b>
<b>Site Midpoint (Latitude, Longitude):</b> 44.37406394, -103.85831780	<b>Site Length (m):</b> 100	<b>pH:</b>

Survey Completed by: KNK Aquatic Ecology

Mean Width (m): 1.9

Water Temperature (C): 15.6

Stream Classification: BK0

Number of Pass: 3

Voltage: 300

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	278	284	291	278	15269	282	2840	6184	251.82	4570	115.7	18.5
Brook Trout	All	278	284	291	278	15269	282	2840	6184	251.82	4570	115.7	18.5

Site Number: 57

Date Sampled: 09/14/2000

Conductivity (umhos/cm):

Site Midpoint (Latitude, Longitude): 44.37184360, -103.85453374

Site Length (m): 100

pH:

Survey Completed by: KNK Aquatic Ecology

Mean Width (m): 1.7

Water Temperature (C): 14.4

Stream Classification: BK1

Number of Pass: 3

Voltage: 300

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	377	380	384	377	22892	546	3800	9271	487.18	6114	125.5	23.8
Brook Trout	>=200mm	8	8	8	8	482	47	80	195	42.17	129	214.6	98.0
Brook Trout	All	385	388	392	385	23373	593	3880	9466	529.60	6243	127.4	25.4

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 Cleopatra Creek, 1990-2000

**Site 4**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 11, 1993	440	278-602	
	Sep 13, 1993	121	100-144	
	Sep 17, 1994	361	347-375	
	Sep 19, 1994	140	140-140	
	Oct 11, 1994	136	136-136	
	Sep 18, 1996	249	236-262	
	Sep 04, 1997	592	577-607	

Brook Trout <200mm	Sep 16, 1998	448	446-451	
	Sep 20, 2000	602	565-639	
Brook Trout >=200mm	Sep 11, 1993	2	2-3	BK3
	Sep 13, 1993	3	3-3	BK3
	Sep 17, 1994	1	1-1	BK3
	Sep 19, 1994	3	3-3	BK3
	Oct 11, 1994	1	1-1	BK3
	Sep 18, 1996	21	21-23	BK3
	Sep 04, 1997	14	13-18	BK2
	Sep 16, 1998	4	4-4	BK2
	Sep 20, 2000	9	9-10	BK2

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**Site 45**

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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 12, 1993	2	2-4	
	Sep 16, 1994	20	20-22	
	Sep 19, 1996	35	32-42	

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Brook Trout <200mm	Sep 06, 1997	200	196-205	
	Sep 15, 1998	314	314-316	
	Sep 15, 2000	441	430-452	
Brook Trout >=200mm	Sep 16, 1994	5	5-6	BK3
	Sep 19, 1996	2	2-3	BK3
	Sep 06, 1997	4	4-4	BK2
	Sep 15, 1998	6	6-6	BK2
	Sep 15, 2000	10	10-11	BK1

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**Site 53**

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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 13, 1993	8	7-14	
	Sep 15, 1994	158	131-185	
	Sep 20, 1996	93	91-97	
	Sep 09, 1997	355	345-365	
	Sep 14, 1998	442	440-446	
	Sep 15, 2000	284	278-291	

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Brook Trout >=200mm	Oct 11, 1994	1	1-1	BK3
	Sep 09, 1997	2	2-2	BK2
	Sep 14, 1998	3	3-3	BK2

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**Site 57**

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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 10, 1993	130	114-147	
	Sep 14, 1994	346	319-373	
	Oct 12, 1994	129	129-129	
	Sep 18, 1998	358	357-361	
	Sep 14, 2000	380	377-384	
Brook Trout >=200mm	Sep 10, 1993	2	2-3	BK3
	Sep 14, 1994	2	2-4	BK3
	Sep 18, 1998	10	10-10	BK2
	Sep 14, 2000	8	8-8	BK1

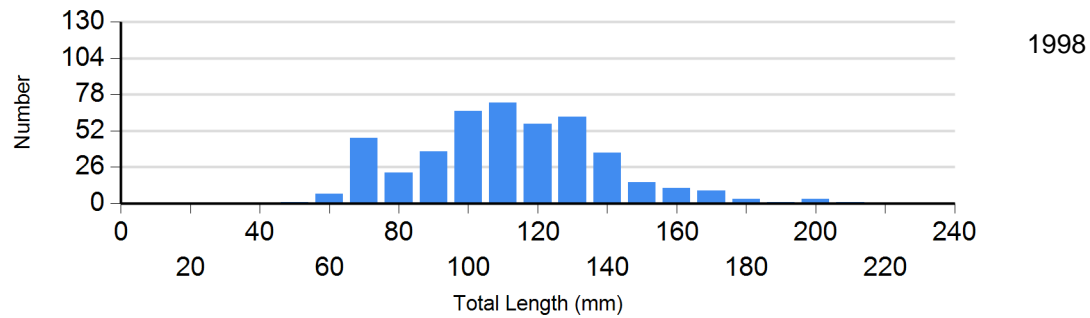
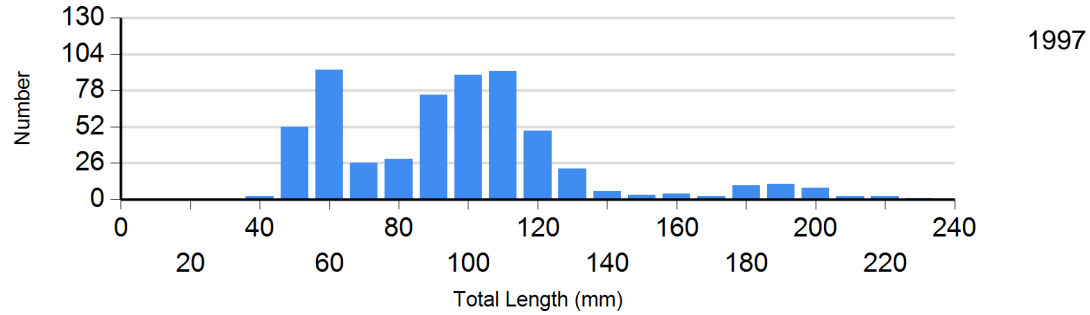
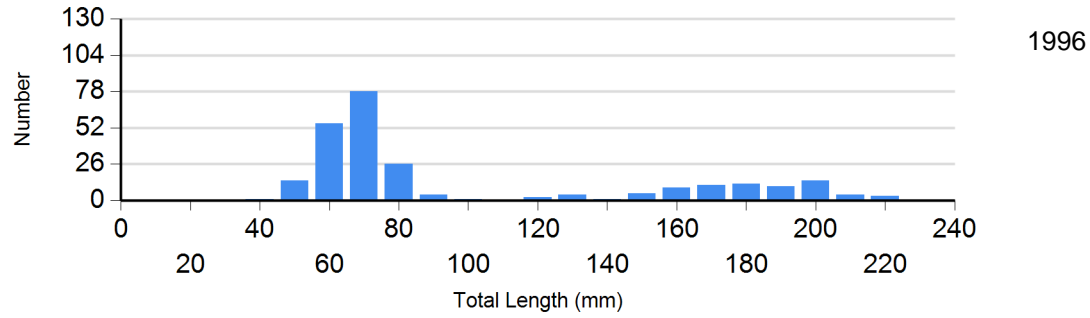
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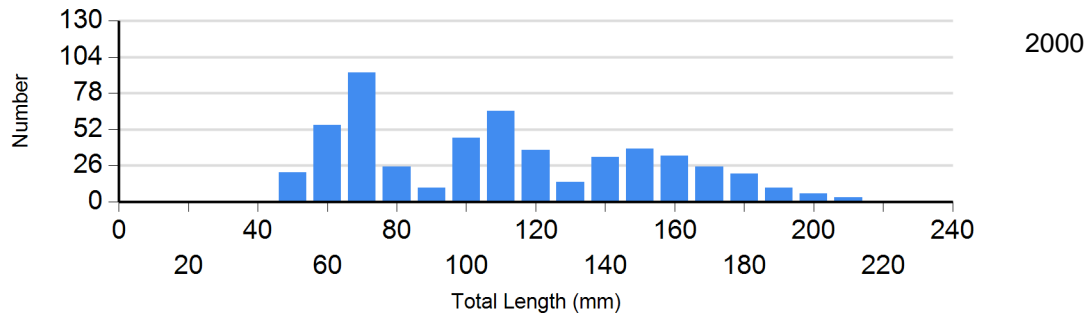
## Length Frequency Distribution

Length frequency histogram of species sampled by year.

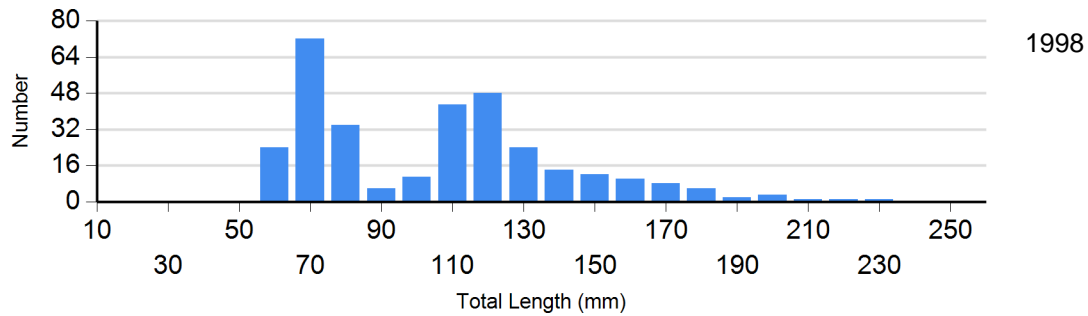
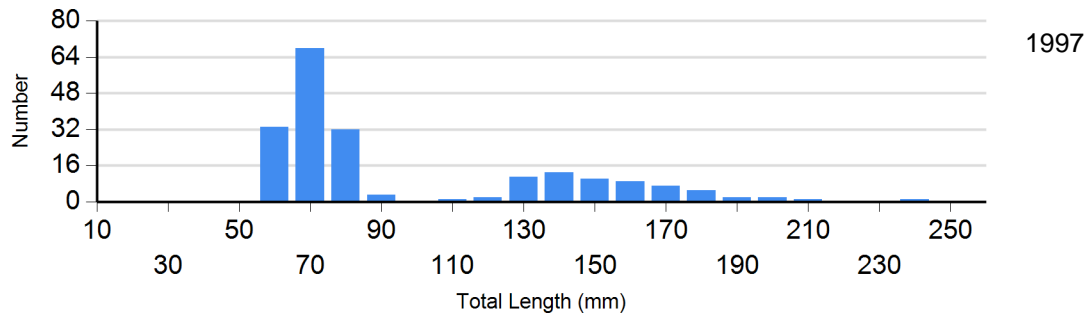
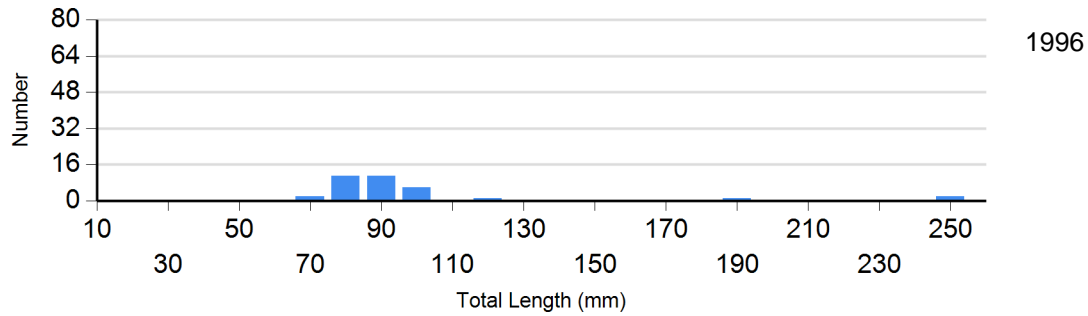
**Site:** 4

**Species:** Brook Trout

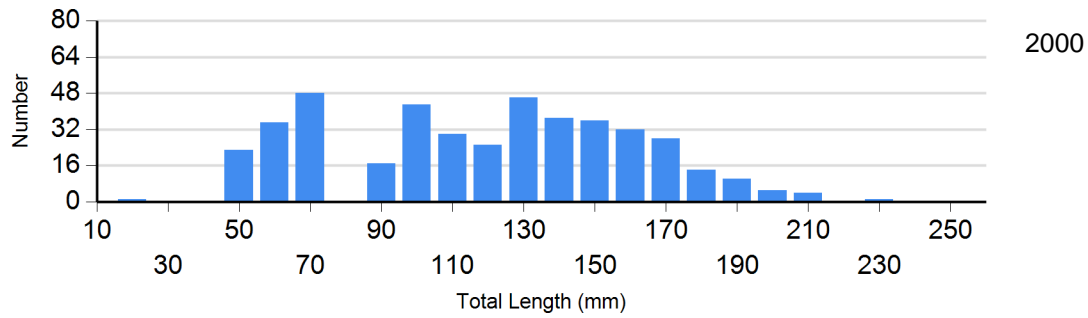




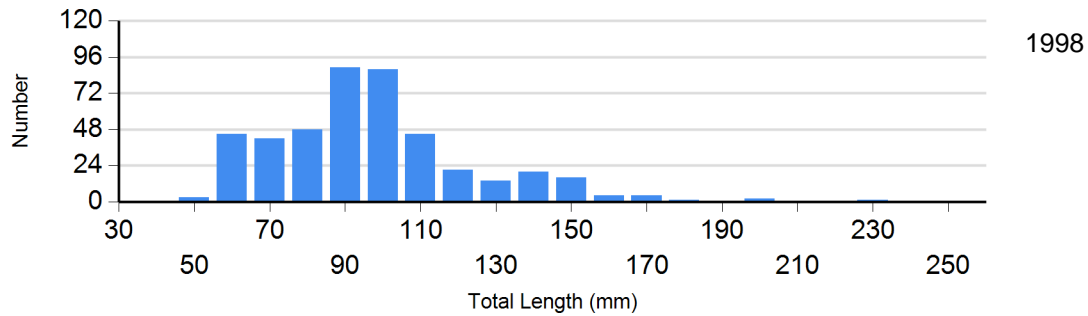
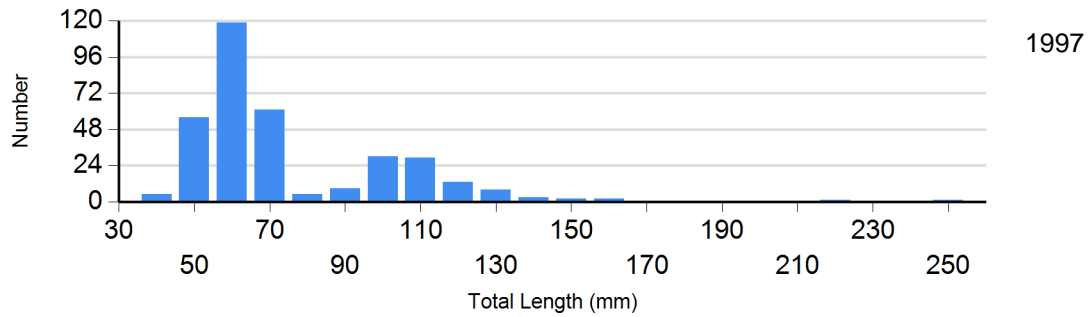
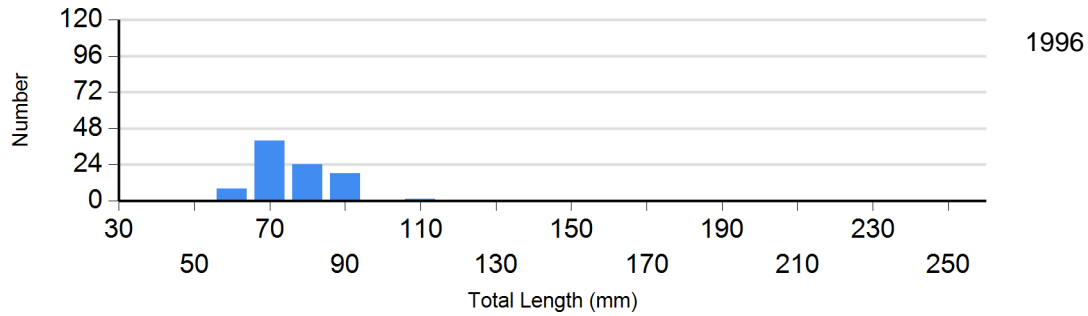
Site: 45  
Species: Brook Trout

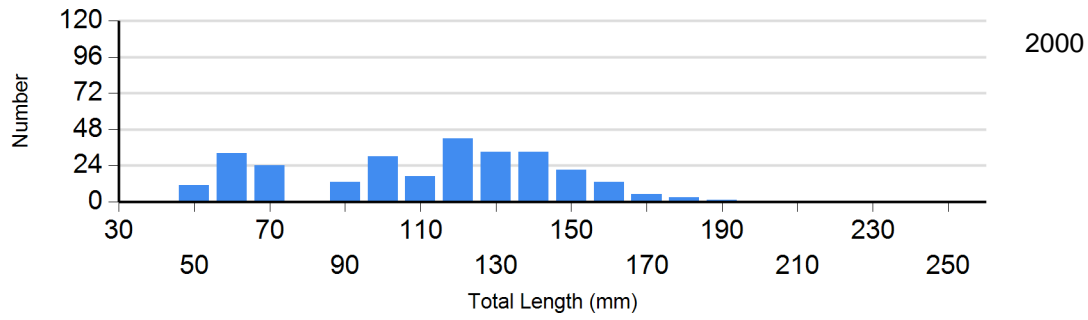






**Site:** 53  
**Species:** Brook Trout





Site: 57  
Species: Brook Trout

