

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Cleopatra Creek, Lawrence County
09-0055-00
2004

Table 1. Population and Biomass Estimates for Cleopatra Creek

Site Number: 4 **Date Sampled:** 09/23/2004 **Conductivity (umhos/cm):**
Site Midpoint (Latitude, Longitude): 44.39921369, -103.89223587 **Site Length (m):** 50 **pH:**
Survey Completed by: KNK Aquatic Ecology **Mean Width (m):** 4.6 **Water Temperature (C):**
Stream Classification: BK0 **Number of Pass:** 4 **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	204	212	220	204	4609	49	4240	1867	44.01	6822	95.9	10.7
Brook Trout	All	204	212	220	204	4609	49	4240	1867	44.01	6822	95.9	10.7

Site Number: 6 **Date Sampled:** 09/23/2004 **Conductivity (umhos/cm):**
Site Midpoint (Latitude, Longitude): 44.39833343, -103.89181119 **Site Length (m):** **pH:**
Survey Completed by: KNK Aquatic Ecology **Mean Width (m):** 0.0 **Water Temperature (C):**
Stream Classification: BK0 **Number of Pass:** 4 **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	215	223	231	215	0	0	0	0	0.00	0	106.0	12.7
Brook Trout	All	215	223	231	215	0	0	0	0	0.00	0	106.0	12.7

Site Number: 9 **Date Sampled:** 09/24/2004 **Conductivity (umhos/cm):**
Site Midpoint (Latitude, Longitude): 44.39653612, -103.88925370 **Site Length (m):** 50 **pH:**
Survey Completed by: KNK Aquatic Ecology **Mean Width (m):** 0.0 **Water Temperature (C):**
Stream Classification: BK0 **Number of Pass:** 4 **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	114	117	122	114	0	0	2340	0	0.00	3765	97.9	11.0
Brook Trout	All	114	117	122	114	0	0	2340	0	0.00	3765	97.9	11.0

Site Number: 45

Site Midpoint (Latitude, Longitude): 44.37686389, -103.86595601

Survey Completed by: KNK Aquatic Ecology

Stream Classification: BK0

Date Sampled: 09/24/2004

Site Length (m): 50

Mean Width (m): 2.6

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C):

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	237	248	258	238	9538	96	4960	3863	85.78	7981	93.7	10.1
Brook Trout	All	237	248	258	238	9538	96	4960	3863	85.78	7981	93.7	10.1

Site Number: 53

Site Midpoint (Latitude, Longitude): 44.37406394, -103.85831780

Survey Completed by: KNK Aquatic Ecology

Stream Classification: BK0

Date Sampled: 09/22/2004

Site Length (m): 50

Mean Width (m): 2.7

Number of Pass: 4

Conductivity (umhos/cm):

pH:

Water Temperature (C):

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	193	207	219	195	7667	51	4140	3105	45.29	6661	86.2	6.6
Brook Trout	All	193	207	219	195	7667	51	4140	3105	45.29	6661	86.2	6.6

Site Number: 54

Site Midpoint (Latitude, Longitude): 44.37332730, -103.85743196

Survey Completed by:

Stream Classification: BK0

Date Sampled: 08/31/2004

Site Length (m): 110

Mean Width (m): 1.5

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C):

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	199	205	212	199	13667	182	1864	5535	162.51	2999	104.1	13.3
Brook Trout	All	199	205	212	199	13667	182	1864	5535	162.51	2999	104.1	13.3

Site Number: 57

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

Survey Completed by: KNK Aquatic Ecology

Stream Classification: BK0

Date Sampled: 09/25/2004

Site Length (m): 100

Mean Width (m): 2.0

Number of Pass: 4

Conductivity (umhos/cm):

pH:

Water Temperature (C):

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	187	199	210	188	9950	125	1990	4030	111.50	3202	105.4	12.6
Brook Trout	All	187	199	210	188	9950	125	1990	4030	111.50	3202	105.4	12.6

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 Cleopatra Creek, 1994-2004

Site 4

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	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	
	Sep 16, 1998	448	446-451	
	Sep 20, 2000	602	565-639	

Brook Trout <200mm	Sep 30, 2002	457	439-475	
	Sep 23, 2004	212	204-220	
Brook Trout >=200mm	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

Site 6

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 18, 1994	417	393-441	
	Oct 11, 1994	32	32-32	
	Sep 18, 1996	244	234-254	
	Sep 05, 1997	629	601-657	
	Sep 16, 1998	500	485-515	

Brook Trout <200mm	Oct 01, 2002	240	231-249	
	Sep 23, 2004	223	215-231	
Brook Trout >=200mm	Sep 18, 1994	24	7-190	BK3
	Sep 18, 1996	21	21-22	BK3
	Sep 05, 1997	9	9-9	BK2
	Sep 16, 1998	3	3-4	BK2

Site 9

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 19, 1994	201	188-214	
	Sep 19, 1996	172	164-181	
	Sep 05, 1997	449	439-459	
	Sep 15, 1998	385	382-389	
	Oct 01, 2002	223	210-236	
	Sep 24, 2004	117	114-122	
Brook Trout >=200mm	Sep 19, 1994	2	2-2	BK3
	Sep 19, 1996	10	10-12	BK3

Brook Trout >=200mm	Sep 05, 1997	5	5-5	BK2
	Sep 15, 1998	1	1-1	BK3
	Oct 01, 2002	2	2-3	BK3

Site 45

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 16, 1994	20	20-22	
	Sep 19, 1996	35	32-42	
	Sep 06, 1997	200	196-205	
	Sep 15, 1998	314	314-316	
	Sep 15, 2000	441	430-452	
	Oct 02, 2002	230	222-238	
	Sep 24, 2004	248	238-258	
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

Brook Trout >=200mm	Sep 15, 2000	10	10-11	BK1
	Oct 02, 2002	4	4-4	BK2

Site 53

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	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	
	Oct 03, 2002	163	151-175	
	Sep 22, 2004	207	195-219	
Brook Trout >=200mm	Oct 11, 1994	1	1-1	BK3
	Sep 09, 1997	2	2-2	BK2
	Sep 14, 1998	3	3-3	BK2

Site 54

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Aug 31, 2004	205	199-212	

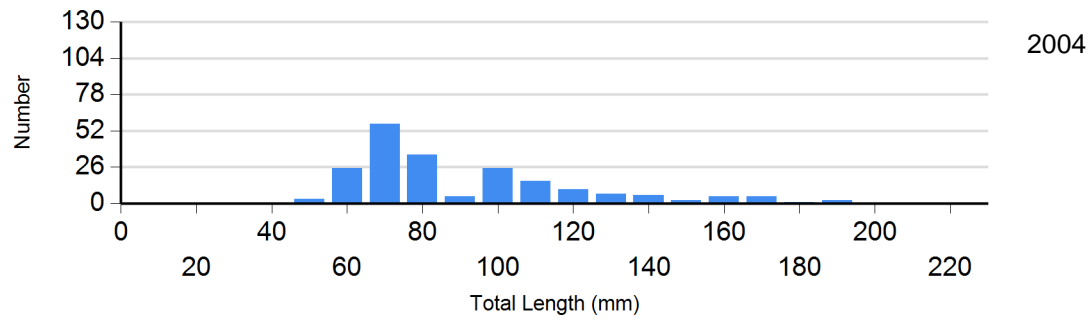
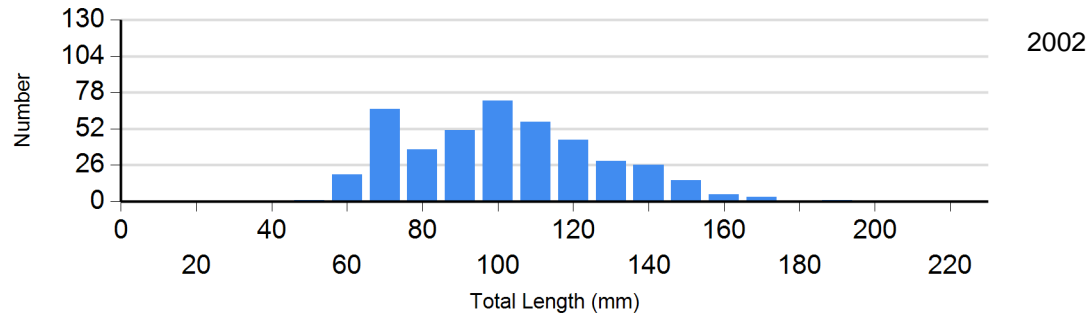
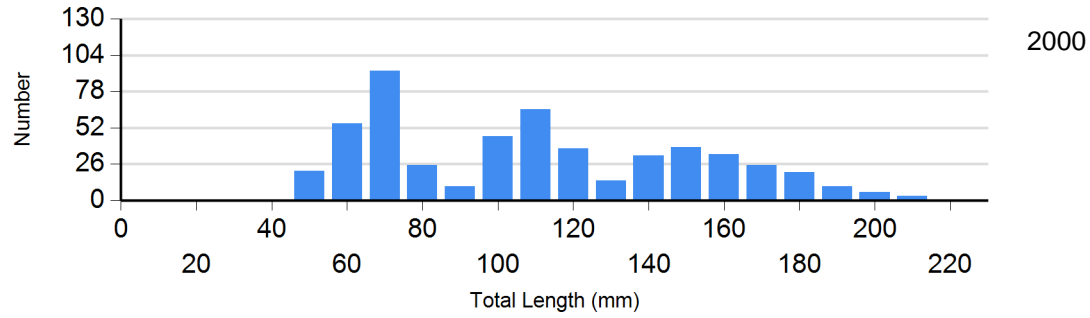
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 14, 1994	346	319-373	
	Oct 12, 1994	129	129-129	
	Sep 18, 1998	358	357-361	
	Sep 14, 2000	380	377-384	
	Oct 03, 2002	277	266-288	
	Sep 25, 2004	199	188-210	
Brook Trout >=200mm	Sep 14, 1994	2	2-4	BK3
	Sep 18, 1998	10	10-10	BK2
	Sep 14, 2000	8	8-8	BK1

Length Frequency Distribution

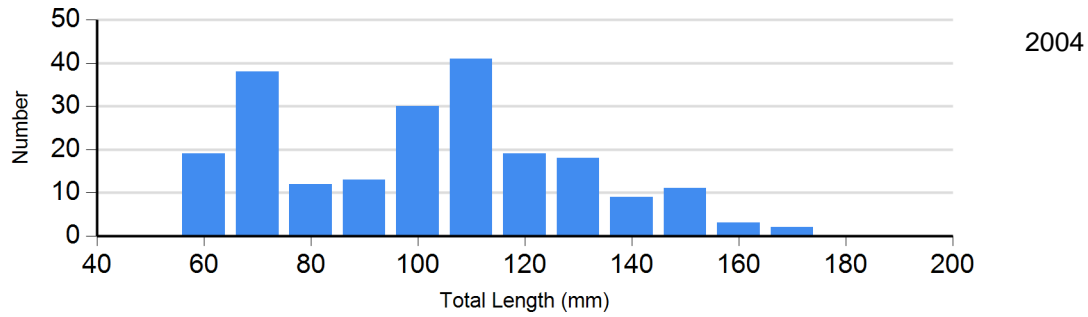
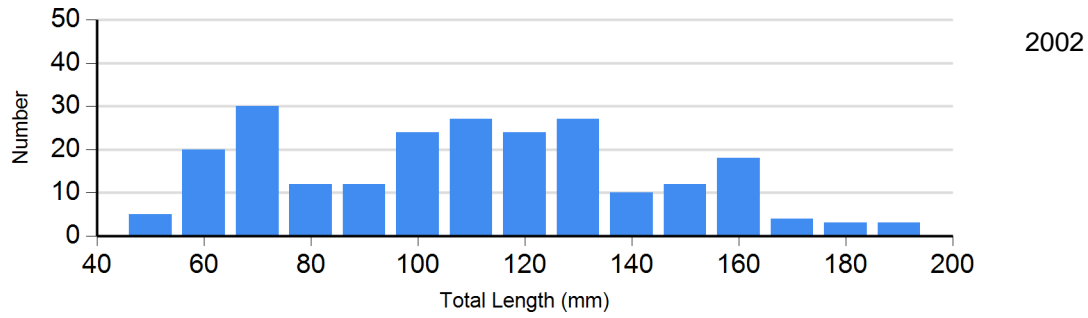
Length frequency histogram of species sampled by year.

Site: 4

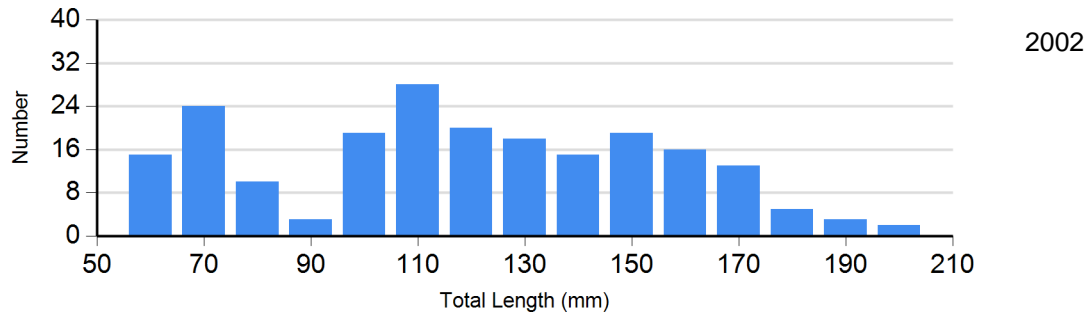
Species: Brook Trout

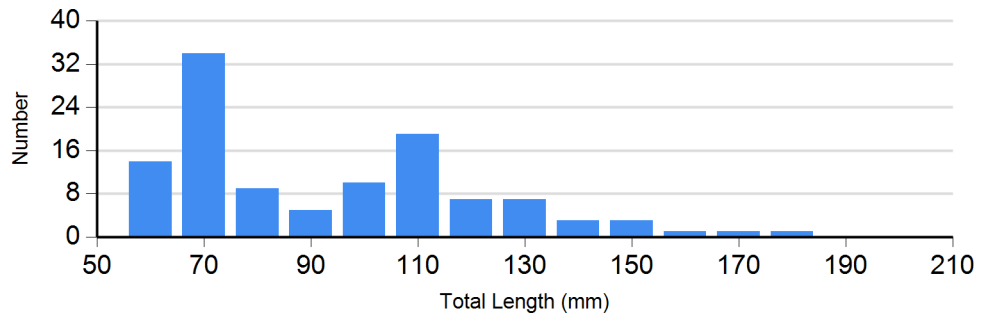


Site: 6
Species: Brook Trout

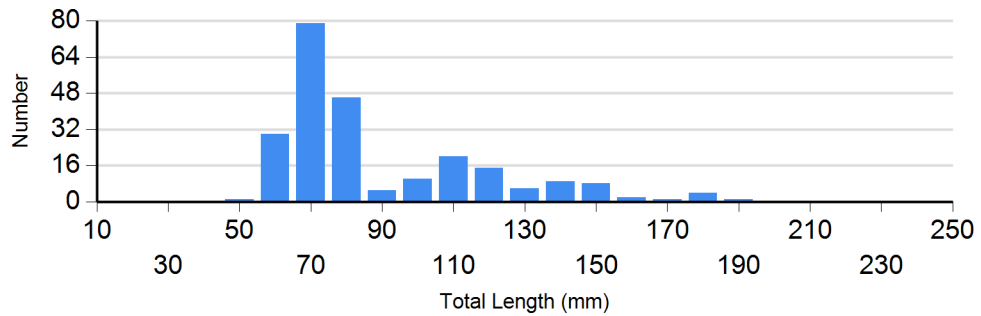
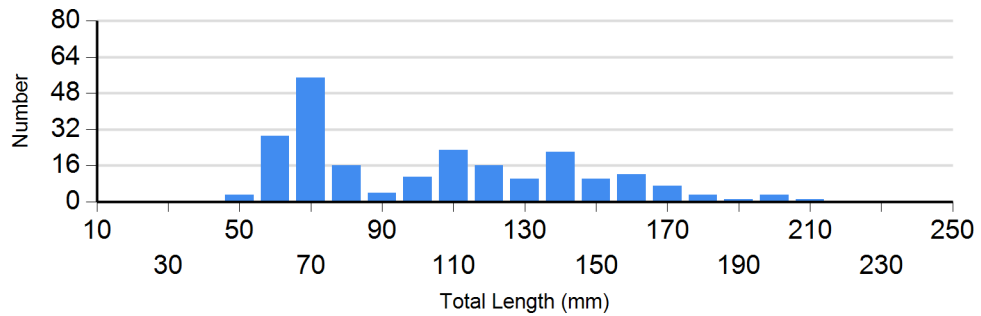
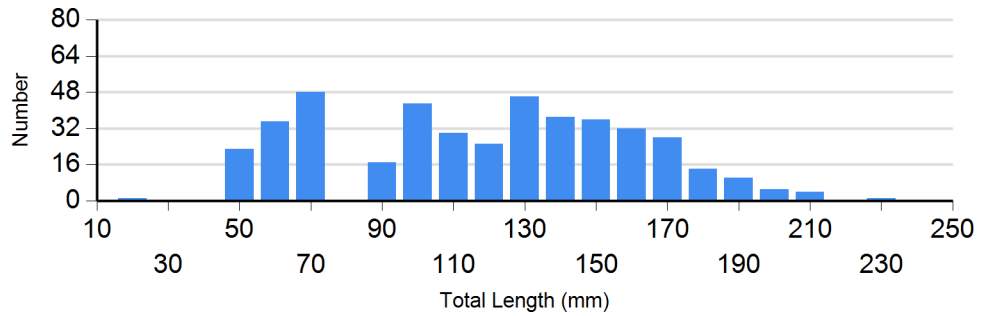


Site: 9
Species: Brook Trout

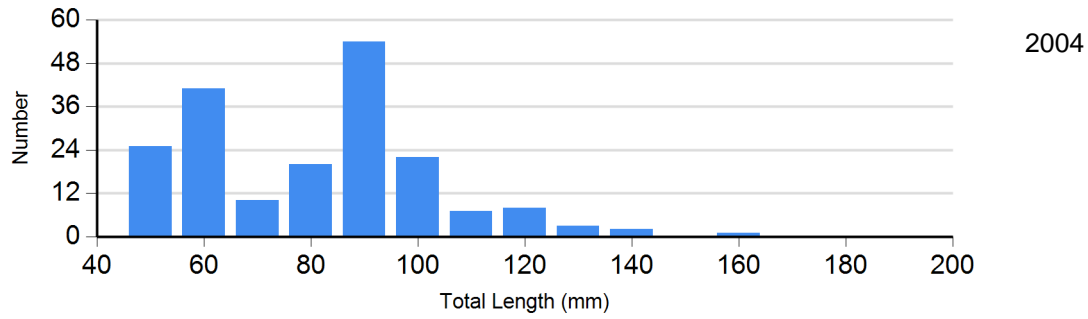
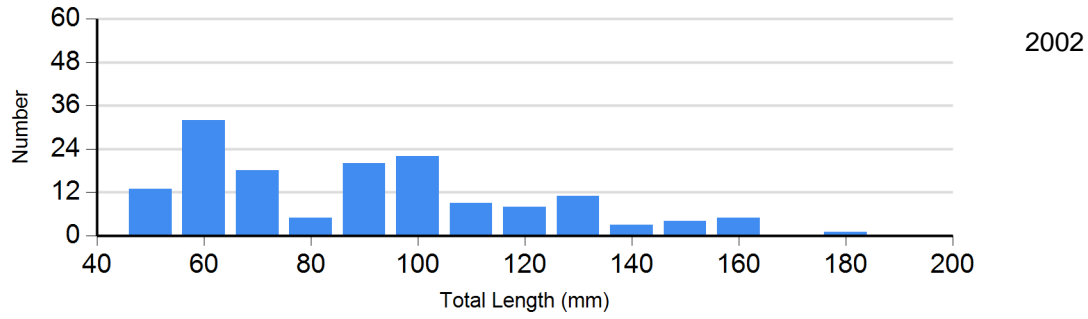
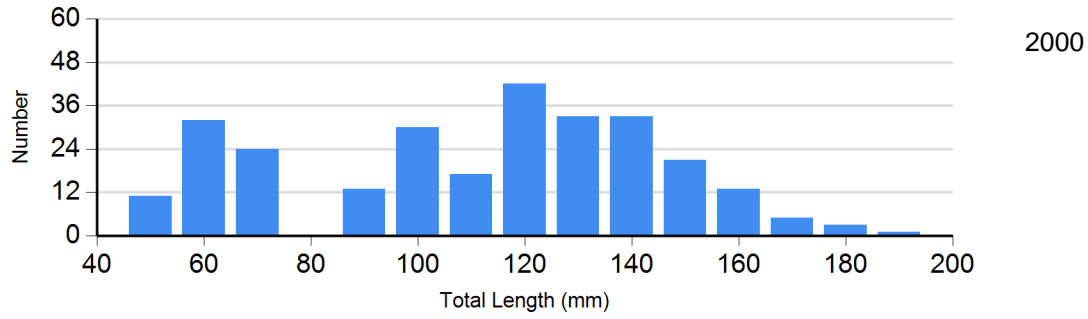




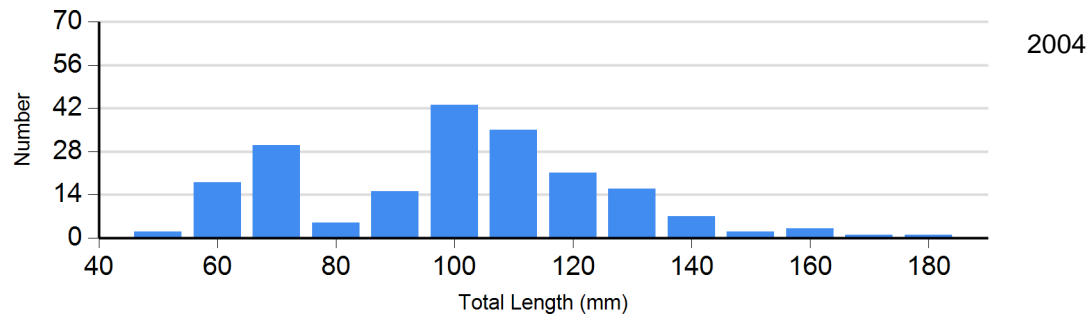
Site: 45
Species: Brook Trout



Site: 53
Species: Brook Trout



Site: 54
Species: Brook Trout



Site: 57
Species: Brook Trout

