

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Cleopatra Creek, Lawrence County
09-0055-00
2002

Table 1. Population and Biomass Estimates for Cleopatra Creek

Site Number: 4	Date Sampled: 09/30/2002	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.39921369, -103.89223587	Site Length (m): 84	pH:
Survey Completed by: KNK Aquatic Ecology	Mean Width (m): 4.7	Water Temperature (C): 6.7
Stream Classification: BK0	Number of Pass: 4	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	426	457	475	439	9703	122	5440	3930	109.35	8754	106.2	12.6
Brook Trout	All	426	457	475	439	9703	122	5440	3930	109.35	8754	106.2	12.6

Site Number: 6	Date Sampled: 10/01/2002	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.39833343, -103.89181119	Site Length (m): 50	pH:
Survey Completed by: KNK Aquatic Ecology	Mean Width (m): 3.5	Water Temperature (C): 6.7
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	231	240	249	231	6818	116	4800	2761	103.33	7723	113.8	17.0
Brook Trout	All	231	240	249	231	6818	116	4800	2761	103.33	7723	113.8	17.0

Site Number: 9	Date Sampled: 10/01/2002	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.39653612, -103.88925370	Site Length (m): 80	pH:
Survey Completed by: KNK Aquatic Ecology	Mean Width (m): 3.5	Water Temperature (C): 6.7
Stream Classification: BK3	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	208	223	236	210	6433	138	2788	2605	123.05	4485	122.8	21.4
Brook Trout	>=200mm	2	2	3	2	58	5	25	23	4.38	40	204.0	85.0
Brook Trout	All	210	226	239	213	6519	144	2825	2640	128.22	4545	123.6	22.0

Site Number: 45

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

Survey Completed by: KNK Aquatic Ecology

Stream Classification: BK2

Date Sampled: 10/02/2002

Site Length (m): 50

Mean Width (m): 3.0

Number of Pass: 4

Conductivity (umhos/cm):

pH:

Water Temperature (C): 4.2

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	222	230	238	222	7582	118	4600	3071	105.30	7401	107.1	15.6
Brook Trout	>=200mm	4	4	4	4	132	11	80	53	10.21	129	207.5	86.8
Brook Trout	All	226	234	242	226	7714	130	4680	3124	115.81	7530	108.9	16.8

Site Number: 53

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

Survey Completed by: KNK Aquatic Ecology

Stream Classification: BK0

Date Sampled: 10/03/2002

Site Length (m): 50

Mean Width (m): 3.1

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C): 4.4

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	151	163	175	151	5292	56	3260	2143	49.94	5245	95.2	10.6
Brook Trout	All	151	163	175	151	5292	56	3260	2143	49.94	5245	95.2	10.6

Site Number: 57

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

Survey Completed by: KNK Aquatic Ecology

Stream Classification: BK0

Date Sampled: 10/03/2002

Site Length (m): 106

Mean Width (m): 2.2

Number of Pass: 3

Conductivity
(umhos/cm):

pH:

Water Temperature (C): 5.6

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	264	277	288	266	12696	228	2613	5142	203.53	4205	116.9	18.0
Brook Trout	All	264	277	288	266	12696	228	2613	5142	203.53	4205	116.9	18.0

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, 1992-2002

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	
	Sep 30, 2002	457	439-475	
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

Site 6

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 11, 1993	130	124-138	
	Sep 18, 1994	417	393-441	

Brook Trout <200mm	Oct 11, 1994	32	32-32	
	Sep 18, 1996	244	234-254	
	Sep 05, 1997	629	601-657	
	Sep 16, 1998	500	485-515	
	Oct 01, 2002	240	231-249	
Brook Trout >=200mm	Sep 11, 1993	14	14-16	BK3
	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 12, 1993	20	20-21	
	Sep 19, 1994	201	188-214	
	Sep 19, 1996	172	164-181	
	Sep 05, 1997	449	439-459	

Brook Trout <200mm	Sep 15, 1998	385	382-389	
	Oct 01, 2002	223	210-236	
Brook Trout >=200mm	Sep 12, 1993	1	1-1	BK3
	Sep 19, 1994	2	2-2	BK3
	Sep 19, 1996	10	10-12	BK3
	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 12, 1993	2	2-4	
	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	

Brook Trout <200mm	Oct 02, 2002	230	222-238	
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
	Oct 02, 2002	4	4-4	BK2

Site 53

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
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	
	Oct 03, 2002	163	151-175	

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 57

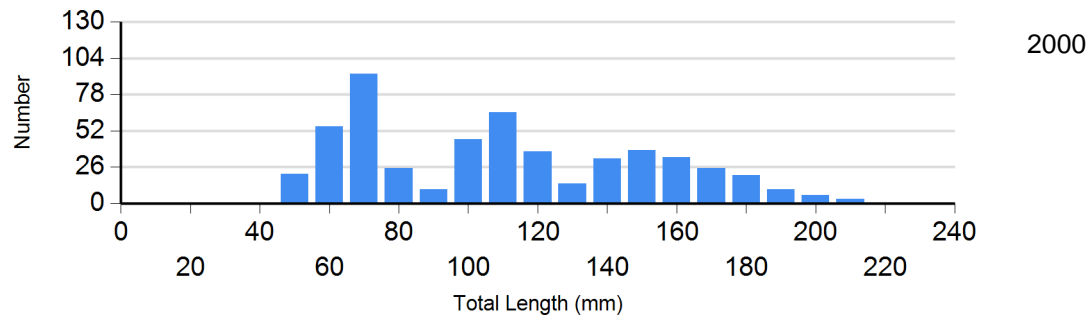
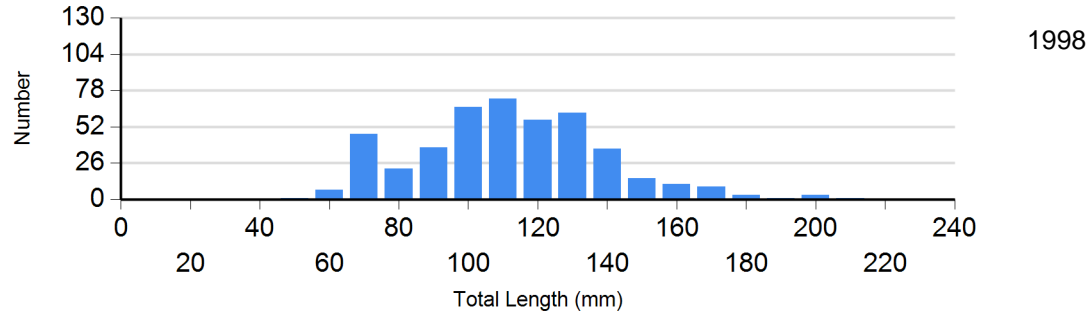
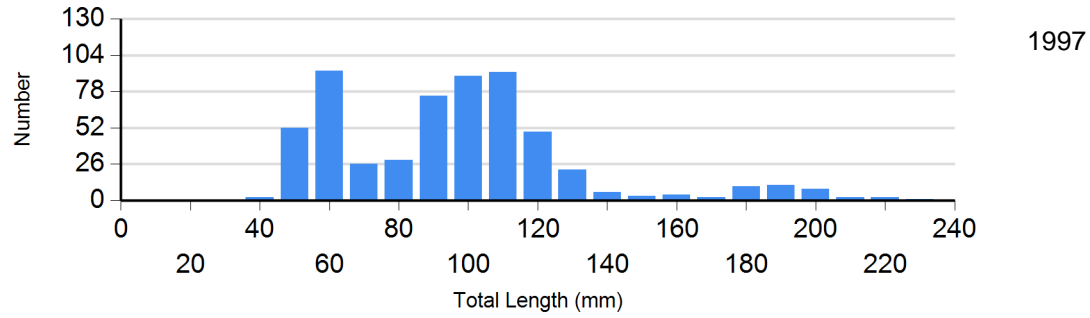
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 10, 1993	130	114-147	
	Sep 14, 1994	346	319-373	
	Oct 12, 1994	129	129-129	
	Sep 18, 1998	358	357-361	
	Sep 14, 2000	380	377-384	
	Oct 03, 2002	277	266-288	
Brook Trout >=200mm	Sep 10, 1993	2	2-3	BK3
	Sep 14, 1994	2	2-4	BK3
	Sep 18, 1998	10	10-10	BK2
	Sep 14, 2000	8	8-8	BK1

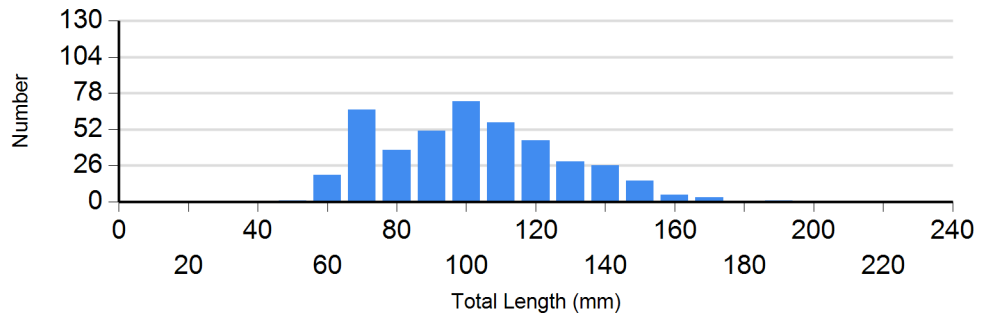
Length Frequency Distribution

Length frequency histogram of species sampled by year.

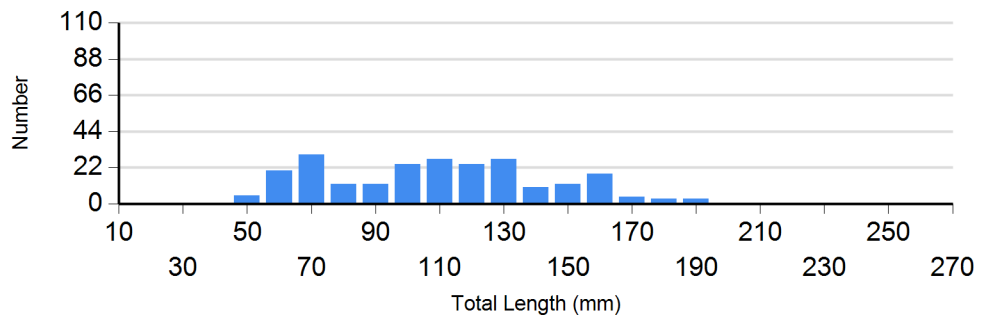
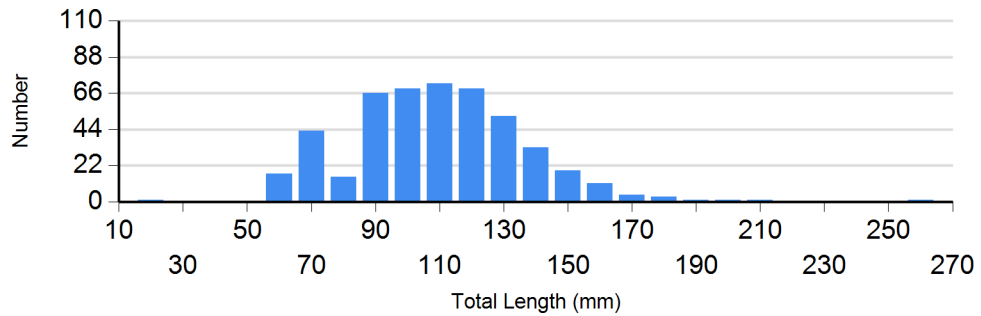
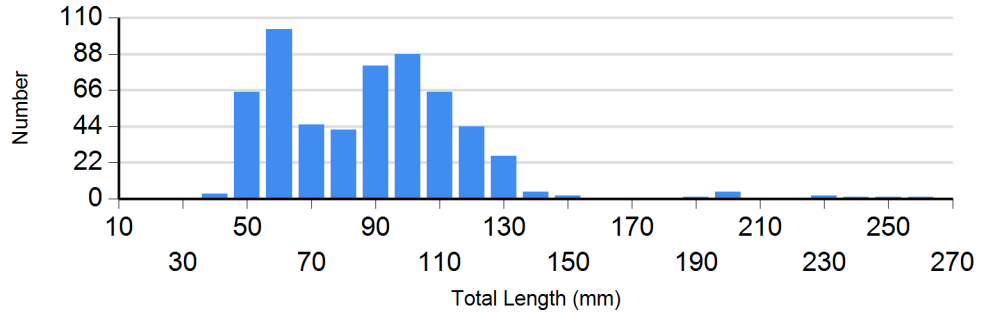
Site: 4

Species: Brook Trout

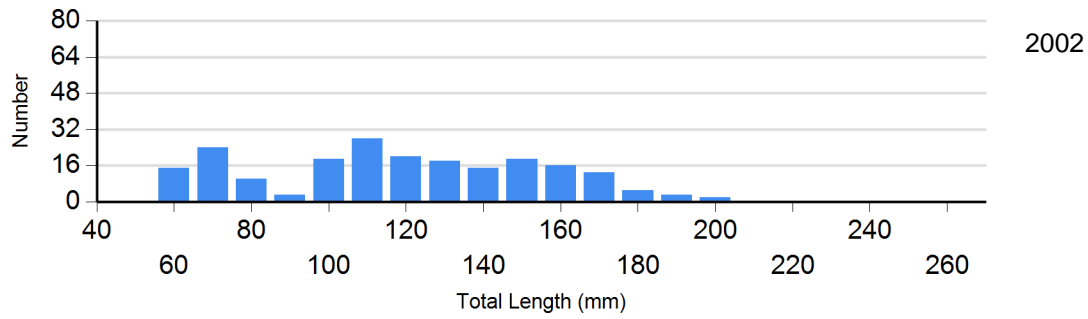
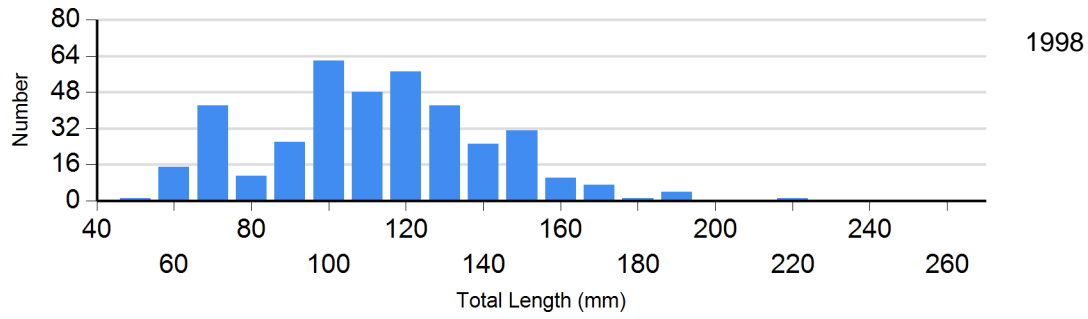
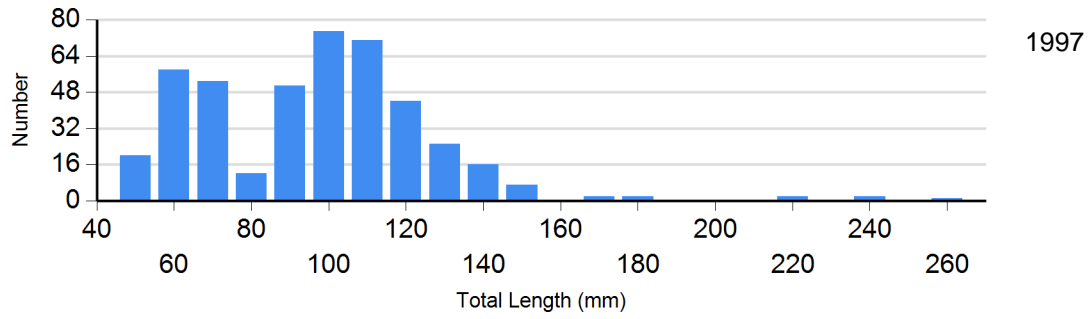




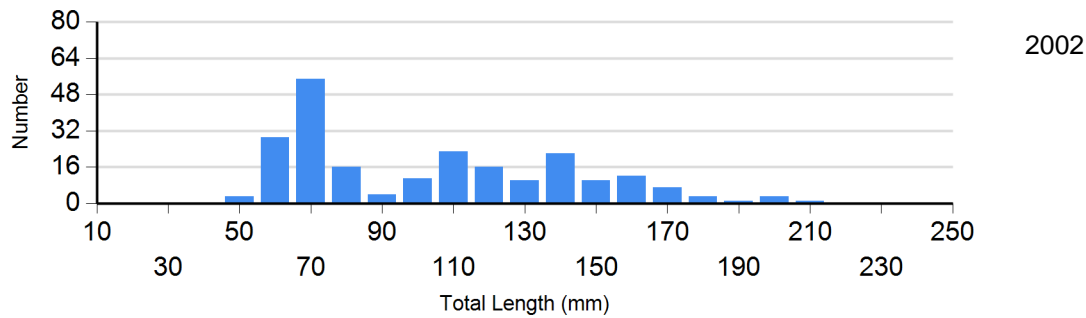
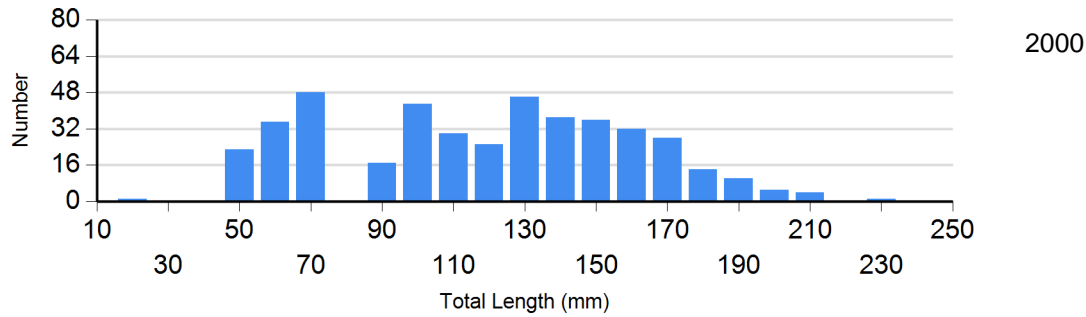
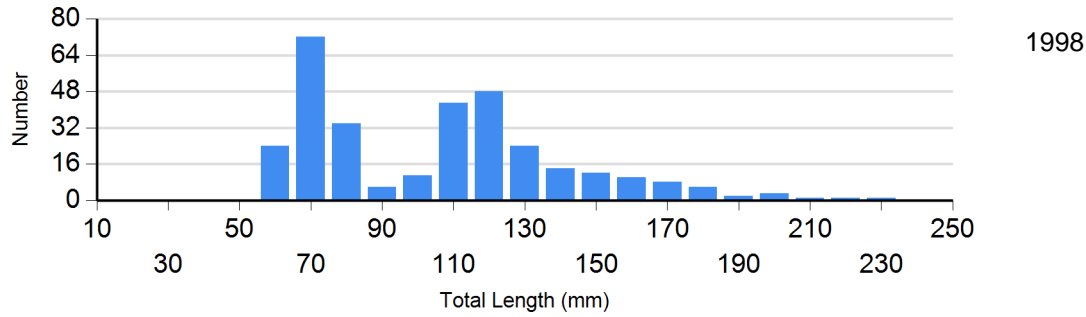
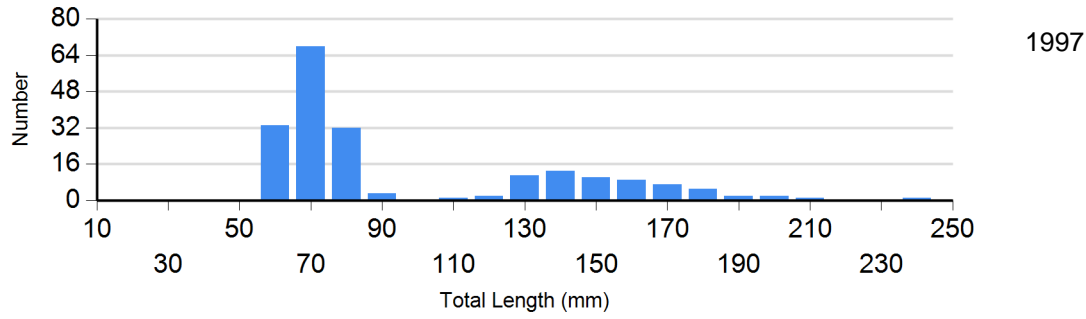
Site: 6
Species: Brook Trout



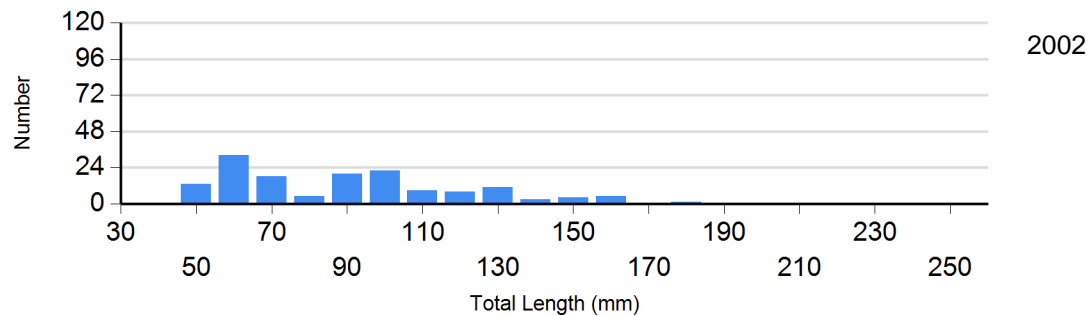
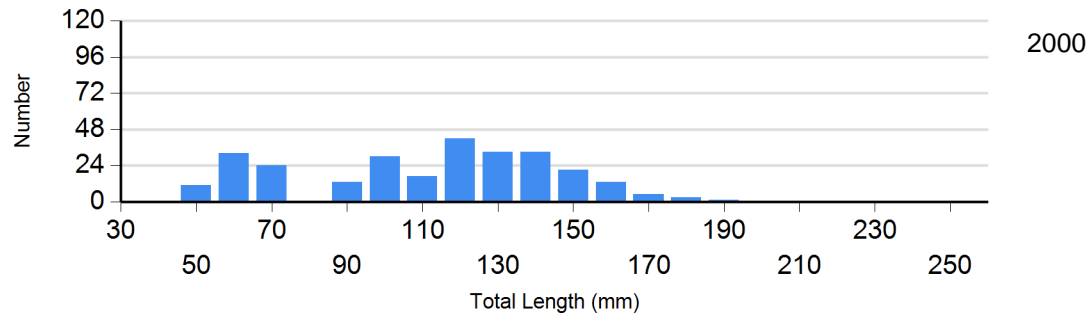
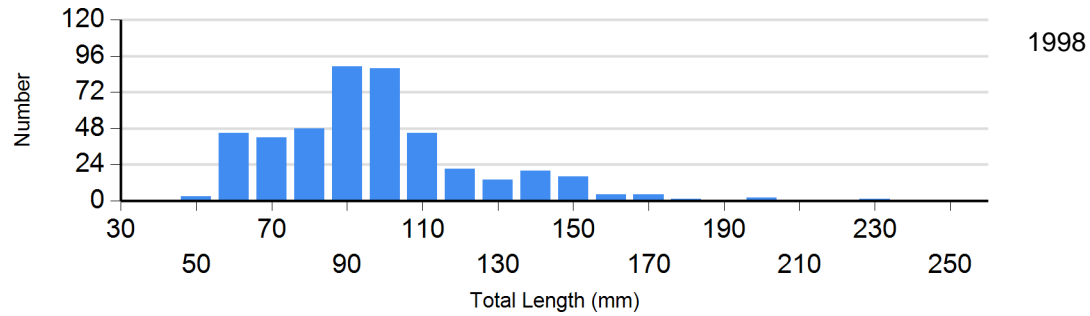
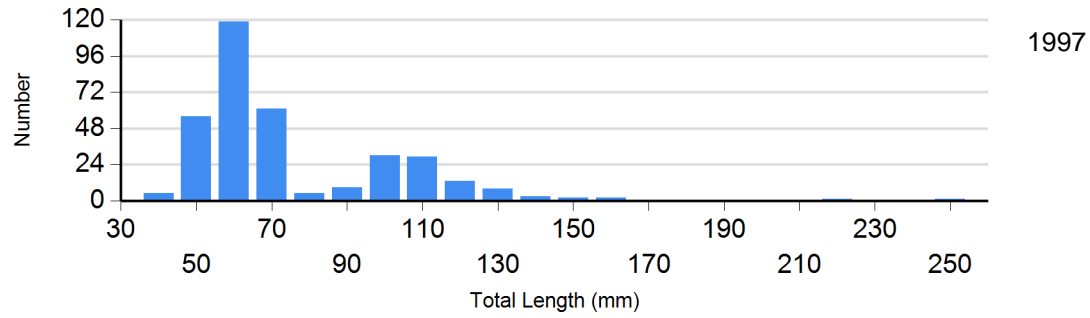
Site: 9
Species: Brook Trout



Site: 45
Species: Brook Trout



Site: 53
Species: Brook Trout



Site: 57
Species: Brook Trout

