

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Cleopatra Creek, Lawrence County
09-0055-00
1998

Table 1. Population and Biomass Estimates for Cleopatra Creek

Site Number: 4	Date Sampled: 09/16/1998	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.39921369, -103.89223587	Site Length (m): 100	pH:
Survey Completed by: OEA Research Inc.	Mean Width (m): 4.3	Water Temperature (C): 15.0
Stream Classification: BK2	Number of Pass: 3	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	446	448	451	446	10323	180	4480	4181	160.94	7208	115.7	17.5
Brook Trout	>=200mm	4	4	4	4	92	8	40	37	7.49	64	207.5	91.0
Brook Trout	All	450	452	455	450	10415	189	4520	4218	168.46	7273	116.6	18.1

Site Number: 6	Date Sampled: 09/16/1998	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.39833343, -103.89181119	Site Length (m): 100	pH:
Survey Completed by: OEA Research Inc.	Mean Width (m): 2.9	Water Temperature (C): 12.0
Stream Classification: BK2	Number of Pass: 3	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	475	500	515	485	17361	288	5000	7031	257.42	8045	113.4	16.6
Brook Trout	>=200mm	3	3	4	3	104	19	30	42	17.30	48	228.0	186.0
Brook Trout	All	478	503	518	488	17465	309	5030	7073	275.54	8093	114.1	17.7

Site Number: 9	Date Sampled: 09/15/1998	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.39653612, -103.88925370	Site Length (m): 100	pH:

Survey Completed by: OEA Research Inc.

Mean Width (m): 4.2

Water Temperature (C): 16.0

Stream Classification: BK3

Number of Pass: 3

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	382	385	389	382	9255	169	3850	3748	151.27	6195	116.8	18.3
Brook Trout	>=200mm	1	1	1	1	24	3	10	10	2.83	16	227.0	132.0
Brook Trout	All	383	386	390	383	9279	173	3860	3758	154.12	6211	117.0	18.6

Site Number: 45

Date Sampled: 09/15/1998

Conductivity (umhos/cm):

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

Site Length (m): 100

pH:

Survey Completed by: OEA Research Inc.

Mean Width (m): 2.2

Water Temperature (C): 12.0

Stream Classification: BK2

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	314	314	316	314	14144	249	3140	5728	222.49	5052	108.7	17.6
Brook Trout	>=200mm	6	6	6	6	270	31	60	109	27.79	97	214.3	115.2
Brook Trout	All	320	320	322	320	14414	280	3200	5838	250.29	5149	110.7	19.4

Site Number: 53

Date Sampled: 09/14/1998

Conductivity (umhos/cm):

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

Site Length (m): 100

pH:

Survey Completed by: OEA Research Inc.

Mean Width (m): 3.0

Water Temperature (C): 15.0

Stream Classification: BK2

Number of Pass: 3

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	440	442	446	440	14932	184	4420	6048	164.48	7112	100.9	12.3
Brook Trout	>=200mm	3	3	3	3	101	10	30	41	9.20	48	214.0	101.7

Brook Trout All 443 445 449 443 15034 195 4450 6089 173.71 7160 101.6 12.9

Site Number: 57

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK2

Date Sampled: 09/18/1998

Site Length (m): 100

Mean Width (m): 3.2

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C): 13.0

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)
Brook Trout	<200mm	357	358	361	357	11188	192	3580	4531	171.10	5760	118.0	17.1
Brook Trout	>=200mm	10	10	10	10	313	36	100	127	31.72	161	227.6	113.7
Brook Trout	All	367	368	371	367	11500	227	3680	4658	202.90	5921	121.0	19.8

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 Cleopatra Creek, 1988-1998

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	
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

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	
	Oct 11, 1994	32	32-32	
	Sep 18, 1996	244	234-254	
	Sep 05, 1997	629	601-657	

Brook Trout <200mm	Sep 16, 1998	500	485-515	
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	
	Sep 15, 1998	385	382-389	
Brook Trout >=200mm	Sep 12, 1993	1	1-1	BK3
	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

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	
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

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	

Brook Trout <200mm	Sep 20, 1996	93	91-97	
	Sep 09, 1997	355	345-365	
	Sep 14, 1998	442	440-446	
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

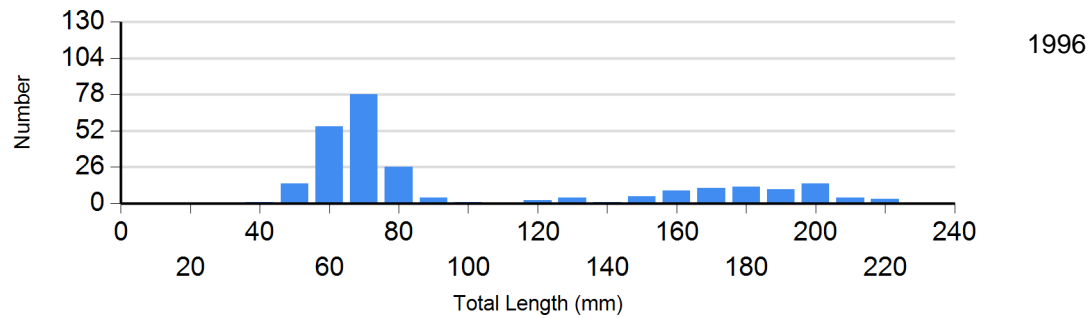
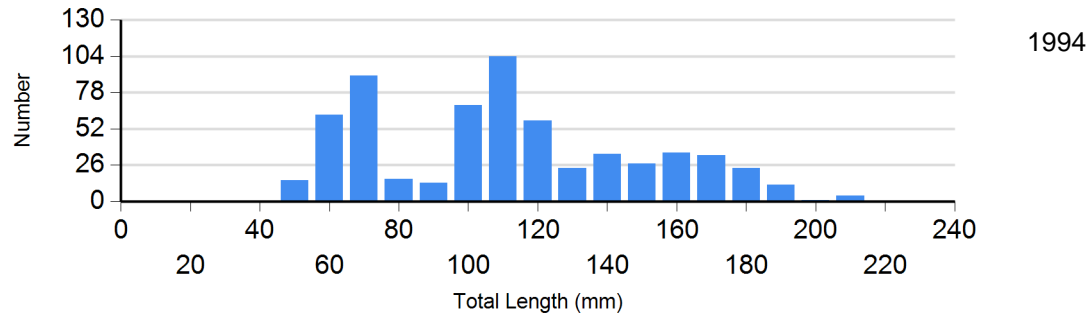
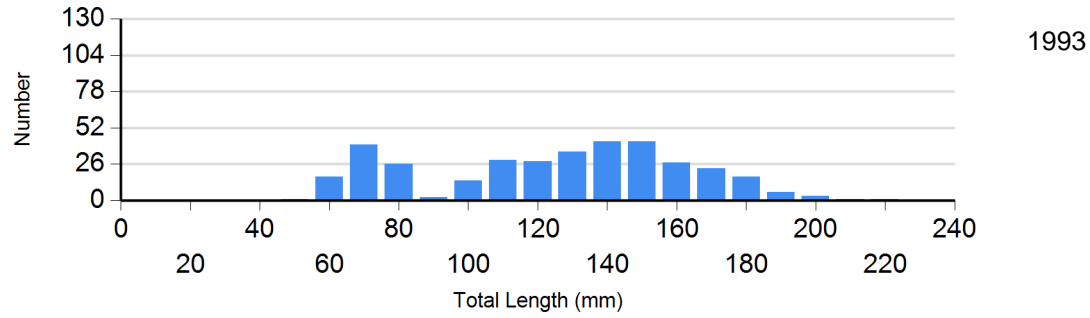
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 10, 1993	130	114-147	
	Sep 14, 1994	346	319-373	
	Oct 12, 1994	129	129-129	
	Sep 18, 1998	358	357-361	
Brook Trout >=200mm	Sep 10, 1993	2	2-3	BK3
	Sep 14, 1994	2	2-4	BK3
	Sep 18, 1998	10	10-10	BK2

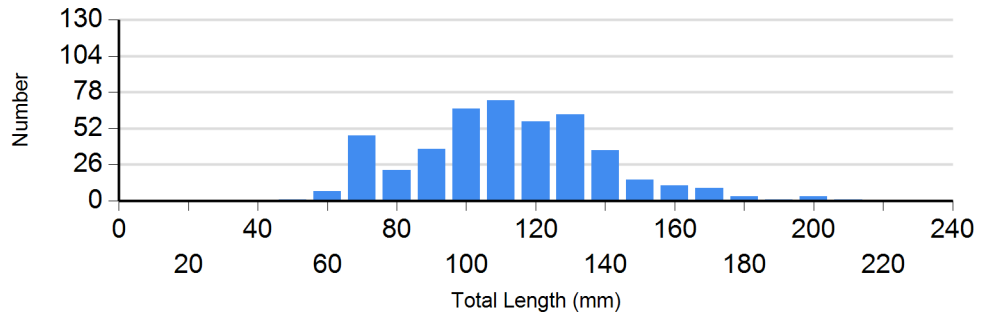
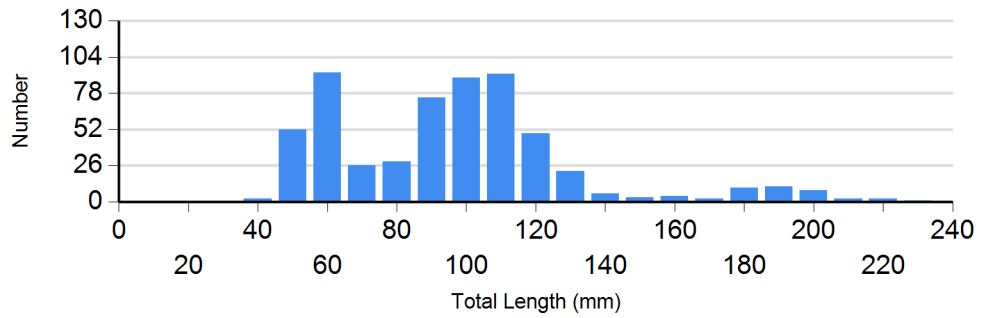
Length Frequency Distribution

Length frequency histogram of species sampled by year.

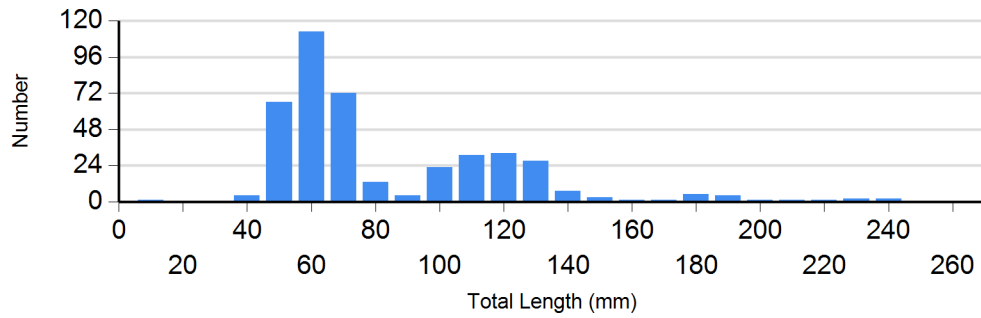
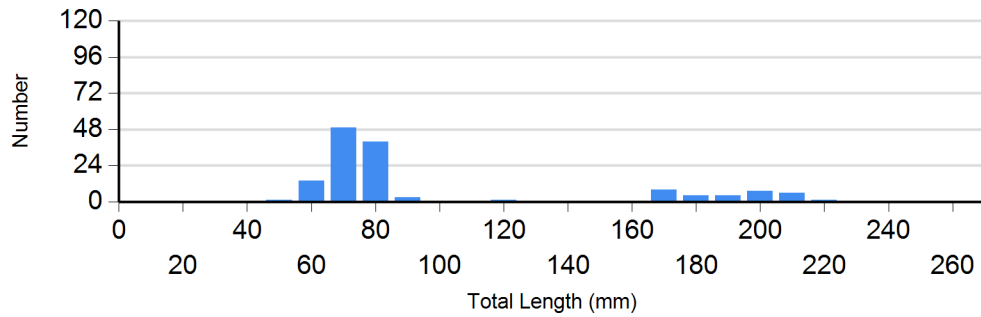
Site: 4

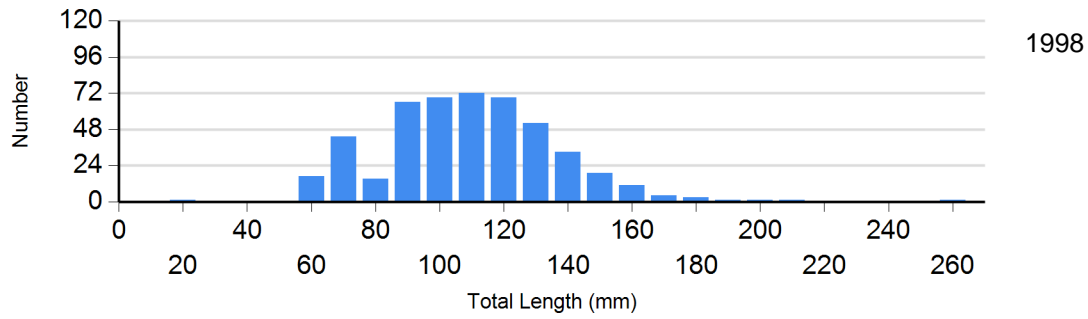
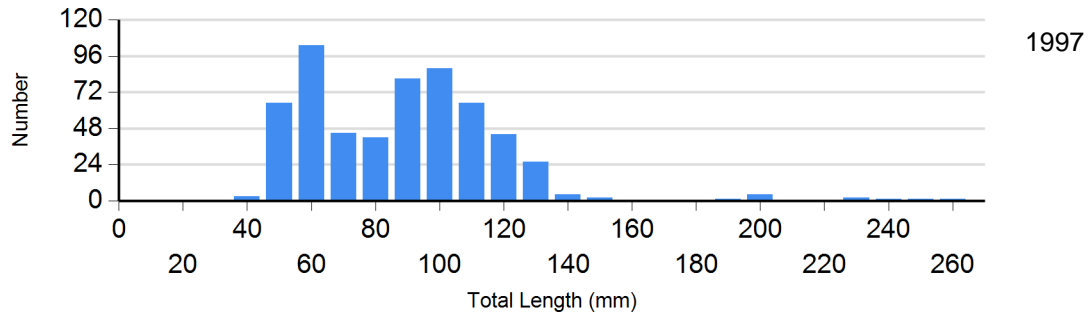
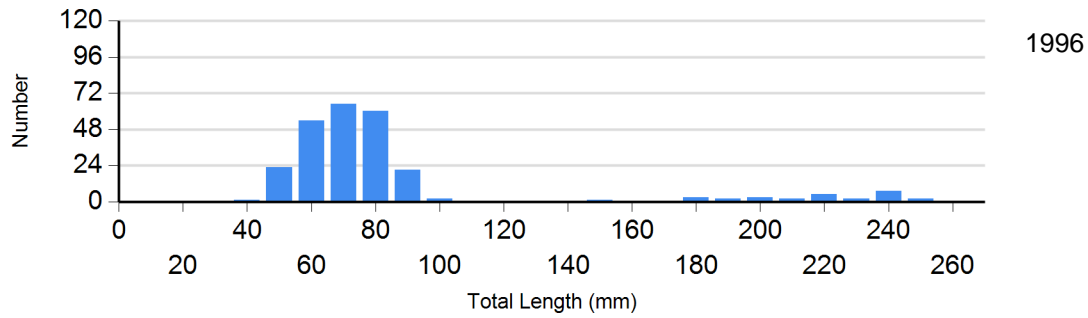
Species: Brook Trout



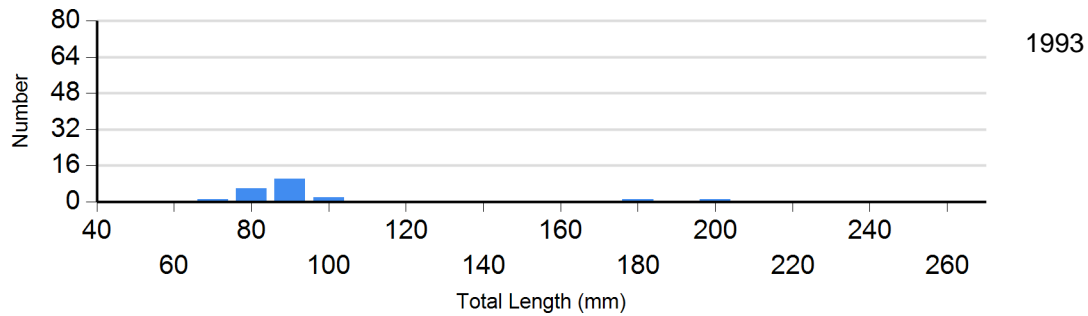


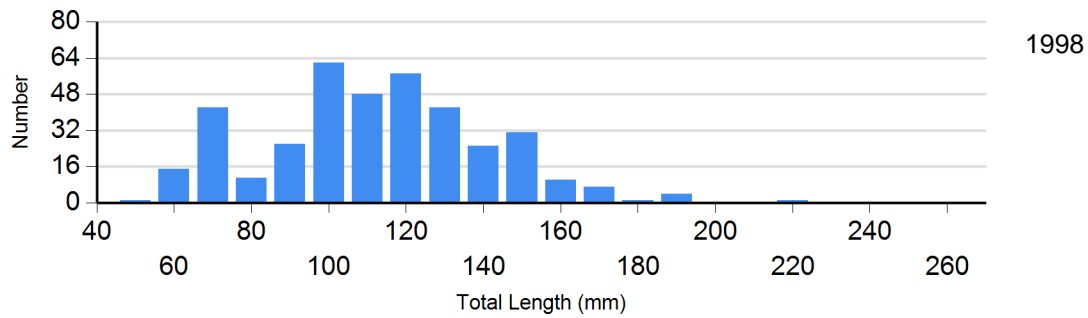
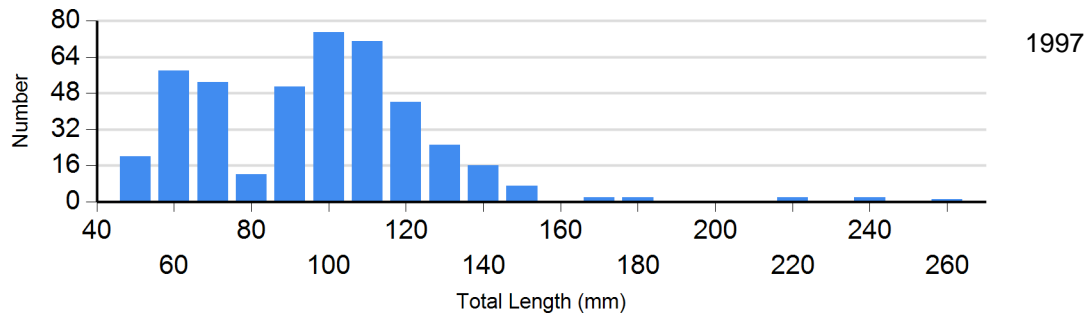
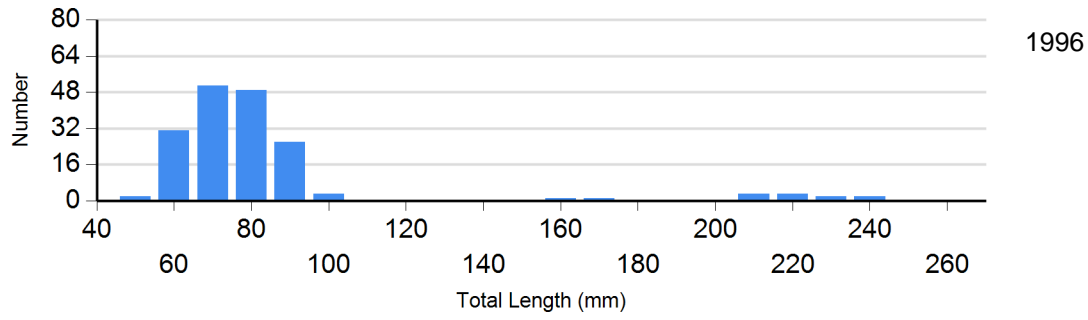
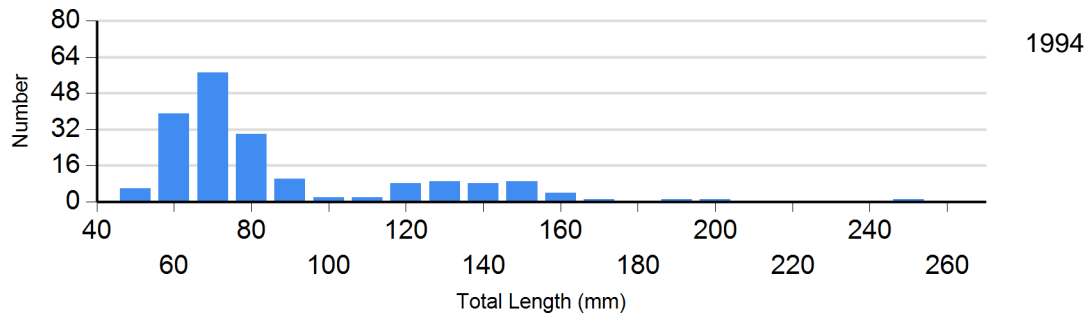
Site: 6
Species: Brook Trout



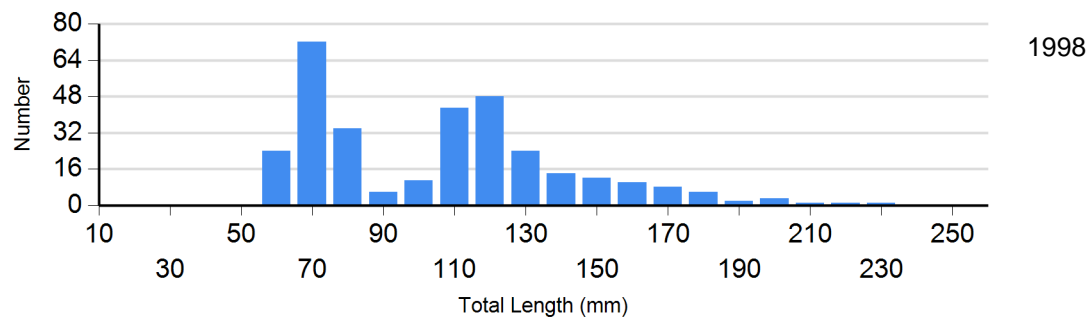
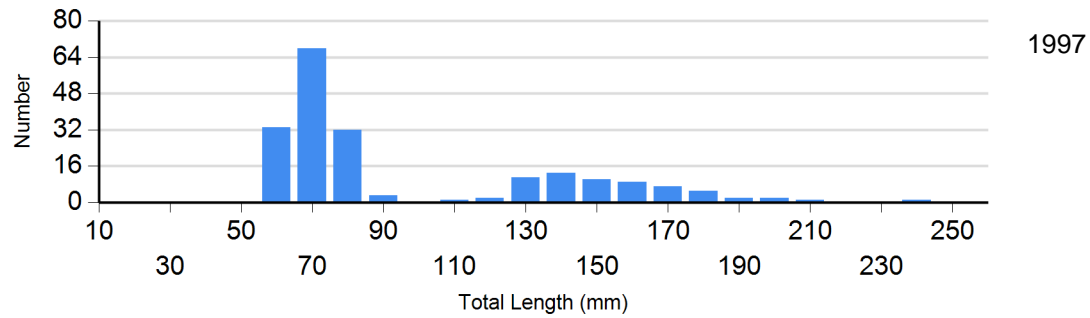
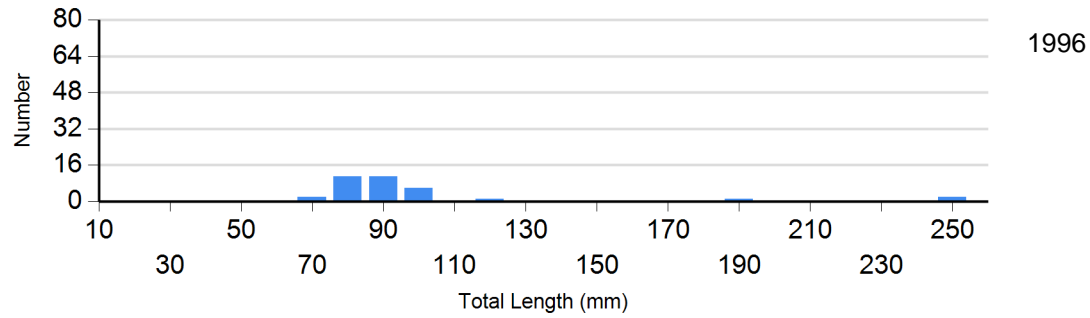
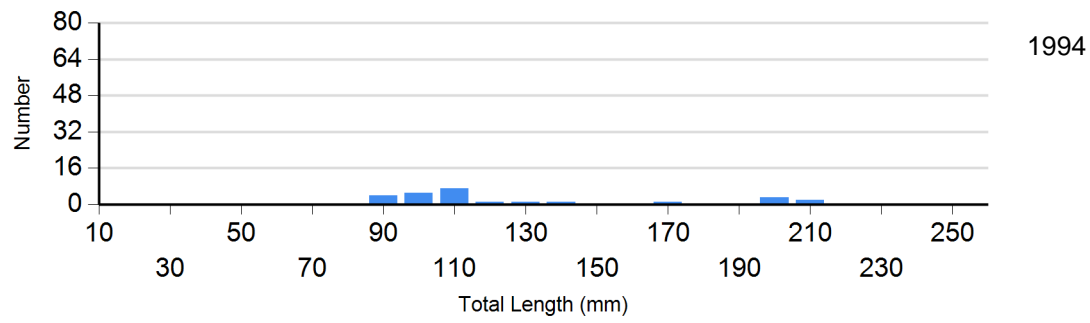


Site: 9
Species: Brook Trout

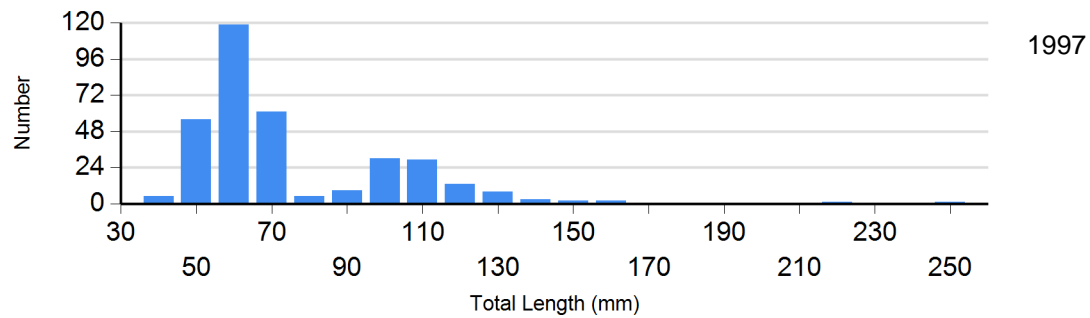
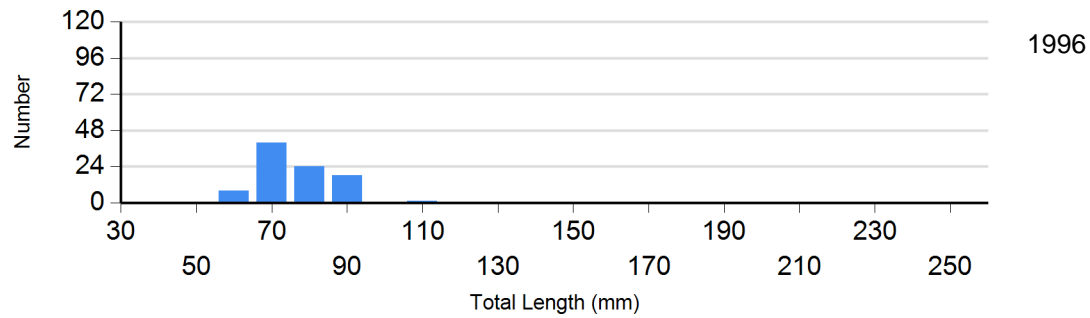
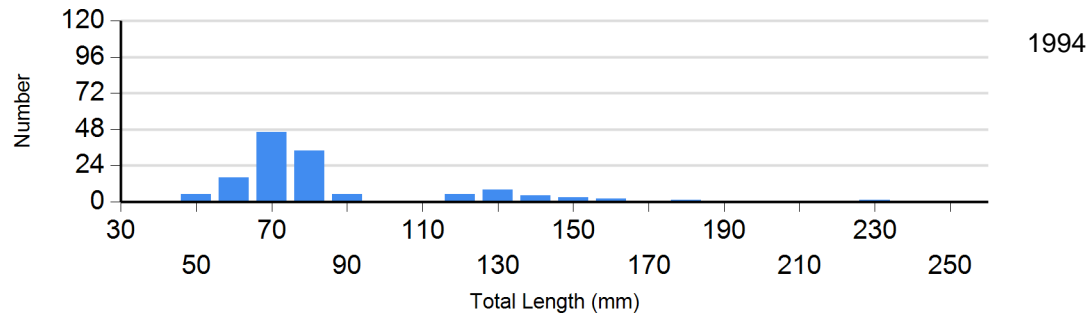
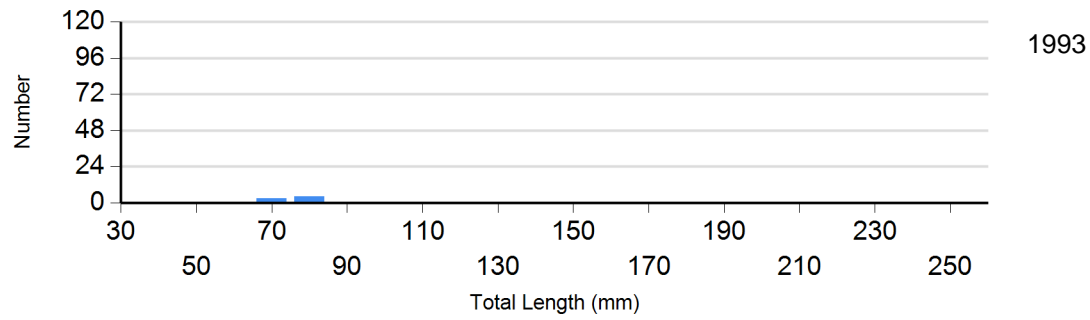


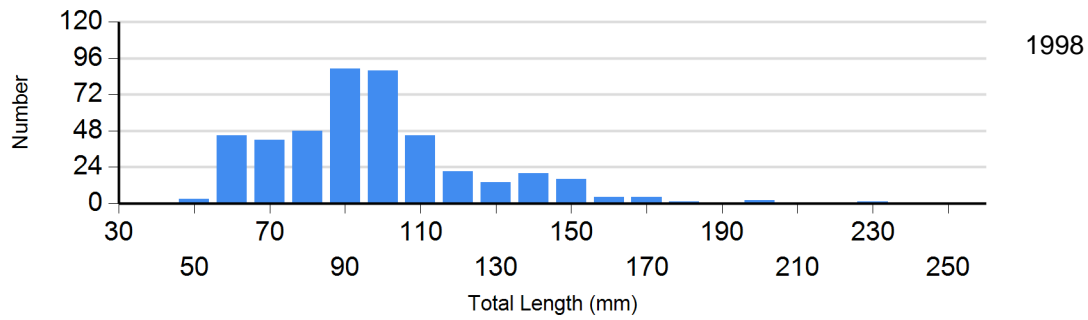


Site: 45
Species: Brook Trout



Site: 53
Species: Brook Trout





Site: 57
Species: Brook Trout

