

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Cleopatra Creek, Lawrence County
09-0055-00
1994

Table 1. Population and Biomass Estimates for Cleopatra Creek

Site Number: 4
Site Midpoint (Latitude, Longitude): 44.39921369, -103.89223587
Survey Completed by: OEA Research Inc.
Stream Classification: BK3

Date Sampled: 09/17/1994
Site Length (m): 100
Mean Width (m): 0.0
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	340	361	375	347	0	0	3610	0	0.00	5808	117.5	20.1
Brook Trout	>=200mm	1	1	1	1	0	0	10	0	0.00	16	202.0	76.0
Brook Trout	All	341	362	376	348	0	0	3620	0	0.00	5825	117.8	20.3

Site Number: 4
Site Midpoint (Latitude, Longitude): 44.39921369, -103.89223587
Survey Completed by: OEA Research Inc.
Stream Classification: BK3, RB0

Date Sampled: 09/19/1994
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 1
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	140	140	140	140	0	0	1400	0	0.00	2253	109.6	19.2
Brook Trout	>=200mm	3	3	3	3	0	0	30	0	0.00	48	215.0	95.3
Brook Trout	All	143	143	143	143	0	0	1430	0	0.00	2301	111.8	20.8
Rainbow Trout	<200mm	248	248	248	248	0	0	2480	0	0.00	3990	65.4	5.2
Rainbow Trout	All	248	248	248	248	0	0	2480	0	0.00	3990	65.4	5.2

Site Number: 4
Site Midpoint (Latitude, Longitude): 44.39921369, -103.89223587
Survey Completed by: OEA Research Inc.
Stream Classification: BK3

Date Sampled: 10/11/1994
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 1
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	136	136	136	136	0	0	1360	0	0.00	2188	117.0	19.6
Brook Trout	>=200mm	1	1	1	1	0	0	10	0	0.00	16	213.0	92.0
Brook Trout	All	137	137	137	137	0	0	1370	0	0.00	2204	117.7	20.1

Site Number: 6
Site Midpoint (Latitude, Longitude): 44.39833343, -103.89181119
Survey Completed by: OEA Research Inc.
Stream Classification: BK3

Date Sampled: 09/18/1994
Site Length (m): 100
Mean Width (m): 0.0
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	375	417	441	393	0	0	4170	0	0.00	6710	84.8	9.1
Brook Trout	>=200mm	7	24	190	7	0	0	240	0	0.00	386	230.0	105.7
Brook Trout	All	382	428	454	402	0	0	4280	0	0.00	6887	87.4	10.9

Site Number: 6
Site Midpoint (Latitude, Longitude): 44.39833343, -103.89181119
Survey Completed by: OEA Research Inc.
Stream Classification: BK0

Date Sampled: 10/11/1994
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 1
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	32	32	32	32	0	0	320	0	0.00	515	103.7	16.0
Brook Trout	All	32	32	32	32	0	0	320	0	0.00	515	103.7	16.0

Site Number: 9

Site Midpoint (Latitude, Longitude): 44.39653612, -103.88925370

Survey Completed by: OEA Research Inc.

Stream Classification: BK3

Date Sampled: 09/19/1994

Site Length (m): 100

Mean Width (m): 0.0

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	186	201	214	188	0	0	2010	0	0.00	3234	90.5	10.7
Brook Trout	>=200mm	2	2	2	2	0	0	20	0	0.00	32	229.5	135.0
Brook Trout	All	188	203	216	190	0	0	2030	0	0.00	3266	91.9	12.0

Site Number: 45

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK3

Date Sampled: 09/16/1994

Site Length (m): 100

Mean Width (m): 0.0

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	20	20	22	20	0	0	200	0	0.00	322	113.5	16.2
Brook Trout	>=200mm	5	5	6	5	0	0	50	0	0.00	80	208.8	96.2
Brook Trout	All	25	25	27	25	0	0	250	0	0.00	402	132.6	32.8

Site Number: 53

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK0

Date Sampled: 09/15/1994

Site Length (m): 100

Mean Width (m): 0.0

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	129	158	185	131	0	0	1580	0	0.00	2542	87.8	9.4
Brook Trout	All	129	158	185	131	0	0	1580	0	0.00	2542	87.8	9.4

Site Number: 53

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK3

Date Sampled: 10/11/1994

Site Length (m): 100

Mean Width (m): 0.0

Number of Pass: 1

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	1	1	1	1	0	0	10	0	0.00	16	231.0	9.8
Brook Trout	All	1	1	1	1	0	0	10	0	0.00	16	231.0	9.8

Site Number: 57

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK3

Date Sampled: 09/14/1994

Site Length (m): 100

Mean Width (m): 0.0

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	303	346	373	319	0	0	3460	0	0.00	5567	100.9	14.9
Brook Trout	>=200mm	2	2	4	2	0	0	20	0	0.00	32	210.0	99.0

Brook Trout All 305 349 376 322 0 0 3490 0 0.00 5615 101.7 15.5

Site Number: 57

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

Survey Completed by: OEA Research Inc.

Stream Classification: BK0

Date Sampled: 10/12/1994

Site Length (m): 100

Mean Width (m): 0.0

Number of Pass: 1

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	129	129	129	129	0	0	1290	0	0.00	2076	93.8	11.2
Brook Trout	All	129	129	129	129	0	0	1290	0	0.00	2076	93.8	11.2

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, 1984-1994

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	
Brook Trout >=200mm	Sep 11, 1993	2	2-3	BK3
	Sep 13, 1993	3	3-3	BK3

Brook Trout >=200mm	Sep 17, 1994	1	1-1	BK3
	Sep 19, 1994	3	3-3	BK3
	Oct 11, 1994	1	1-1	BK3
Rainbow Trout <200mm	Sep 13, 1993	230	175-285	
	Sep 19, 1994	248	248-248	

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	
Brook Trout >=200mm	Sep 11, 1993	14	14-16	BK3
	Sep 18, 1994	24	7-190	BK3

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	
Brook Trout >=200mm	Sep 12, 1993	1	1-1	BK3

Brook Trout >=200mm	Sep 19, 1994	2	2-2	BK3
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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	
Brook Trout >=200mm	Sep 16, 1994	5	5-6	BK3

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	Oct 11, 1994	1	1-1	BK3

Site 57

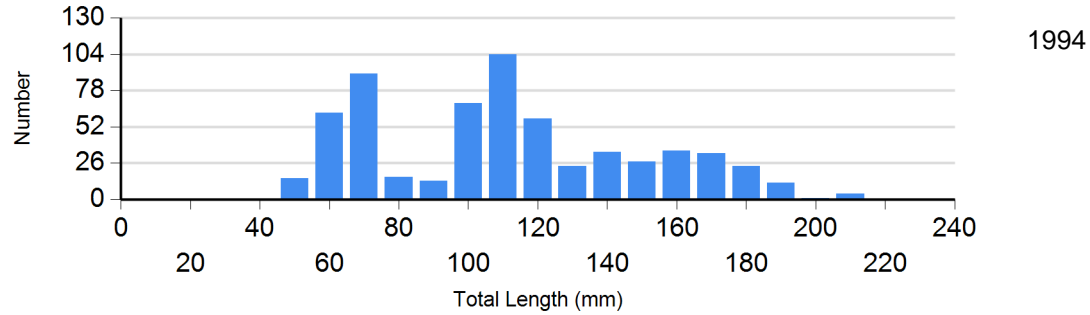
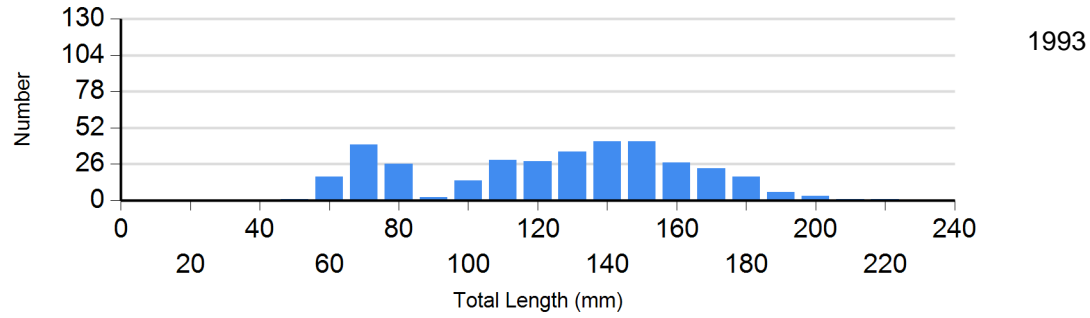
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 10, 1993	130	114-147	
	Sep 14, 1994	346	319-373	
	Oct 12, 1994	129	129-129	
Brook Trout >=200mm	Sep 10, 1993	2	2-3	BK3

Length Frequency Distribution

Length frequency histogram of species sampled by year.

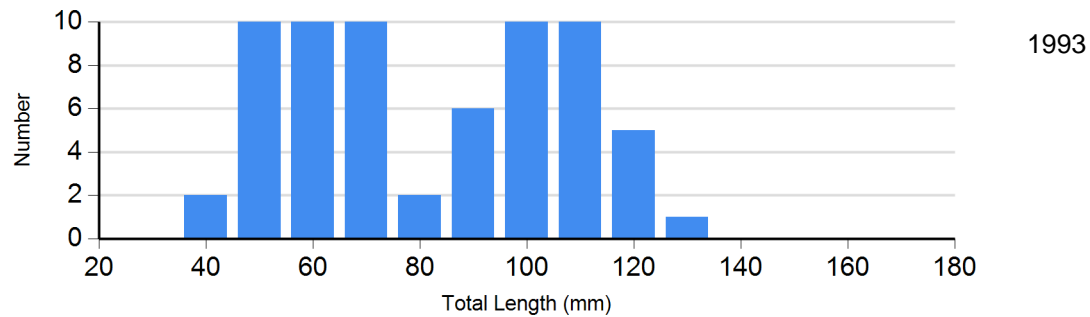
Site: 4

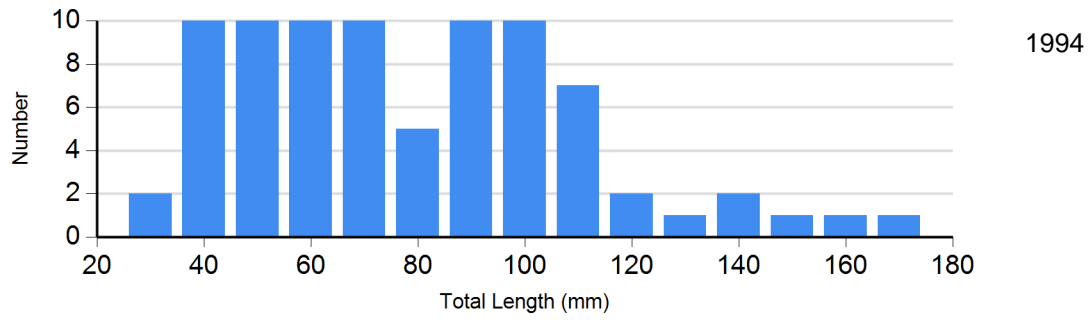
Species: Brook Trout



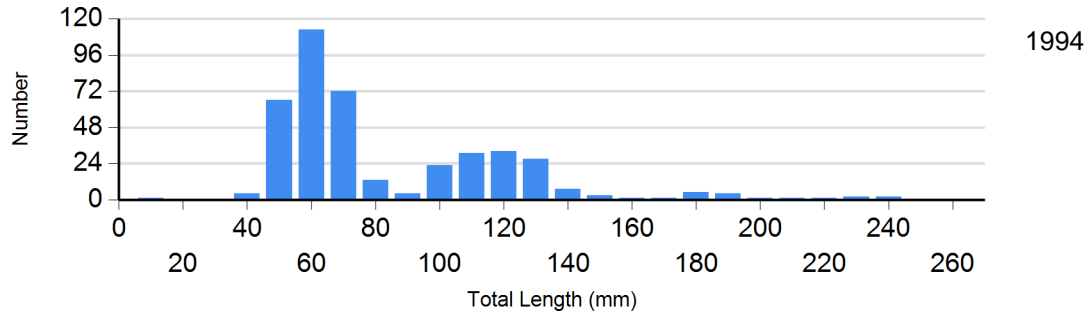
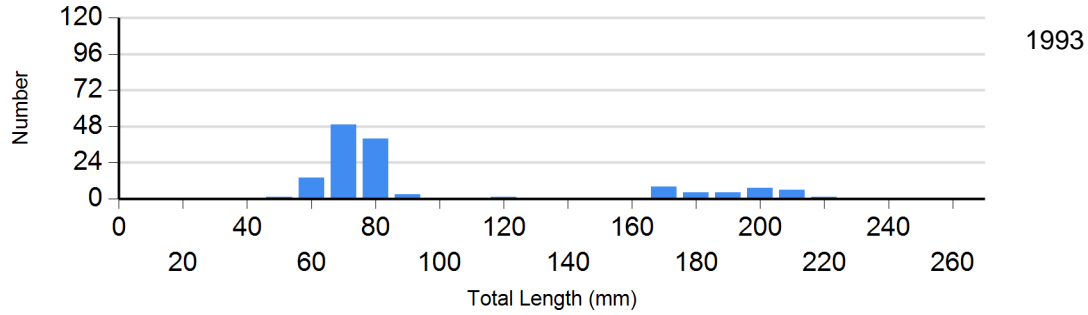
Site: 4

Species: Rainbow Trout

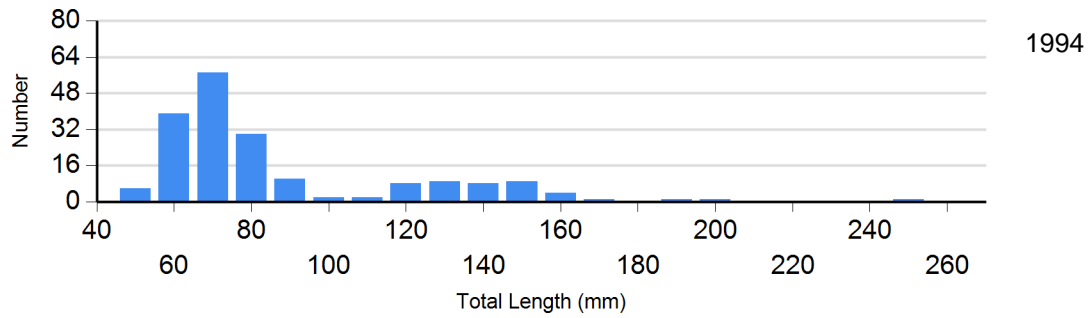
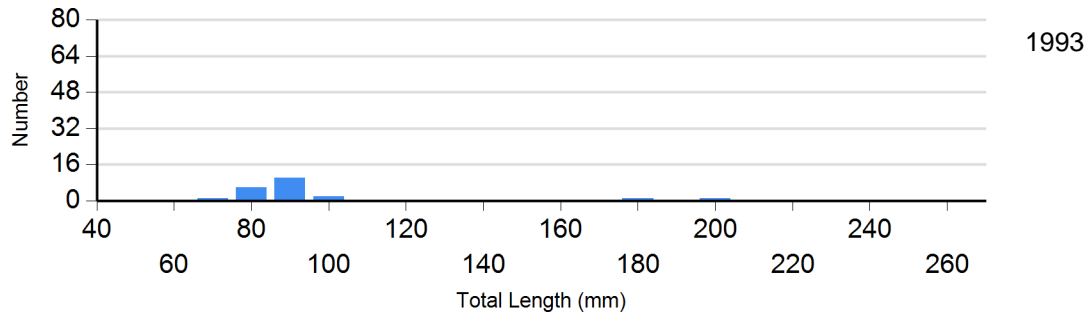




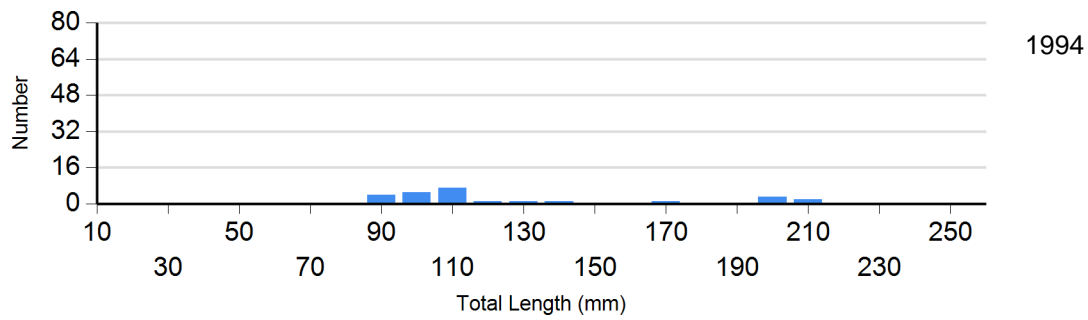
Site: 6
Species: Brook Trout



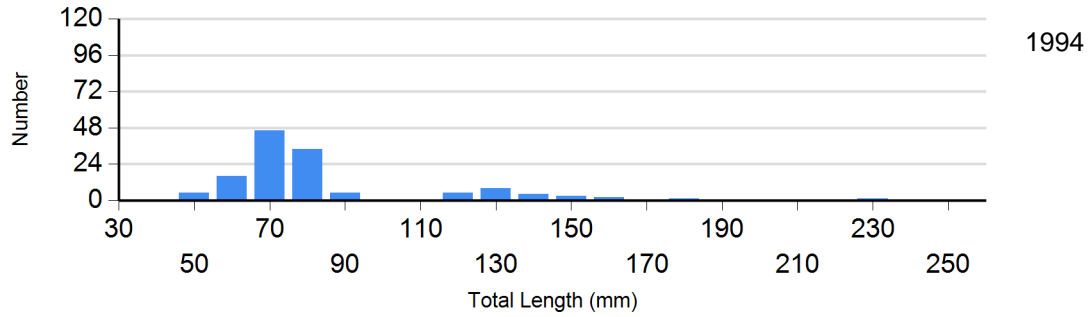
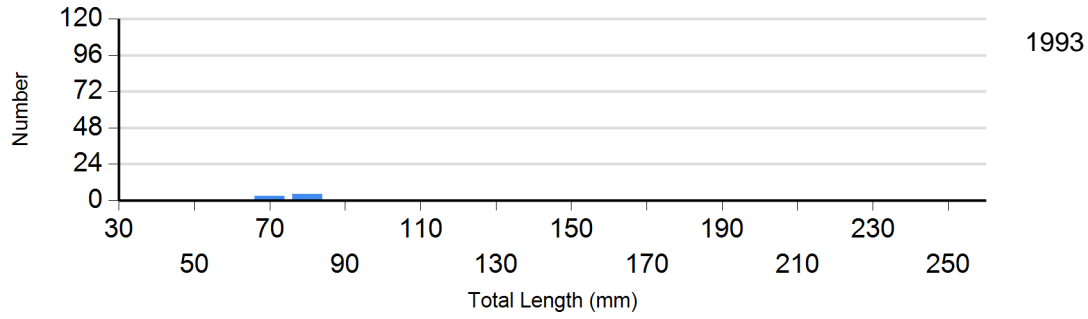
Site: 9
Species: Brook Trout



Site: 45
Species: Brook Trout



Site: 53
Species: Brook Trout



Site: 57
Species: Brook Trout

