

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Rapid Creek, Pennington County
02-0062-00
2004

Table 1. Population and Biomass Estimates for Rapid Creek

Site Number: 1606	Date Sampled: 06/24/2004	Conductivity (umhos/cm): 285
Site Midpoint (Latitude, Longitude): 44.03917228, -103.38297329	Site Length (m): 100	pH:
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 10.8	Water Temperature (C): 13.5
Stream Classification: BR3	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)
Brown Trout	<200mm	372	515	597	433	4789	48	5150	1939	42.56	8286	87.7	10.0
Brown Trout	>=200mm	1	1	1	1	9	2	10	4	1.54	16	276.0	186.0
Brown Trout	All	373	515	597	433	4789	50	5150	1939	44.57	8286	88.2	10.4

Site Number: 1656	Date Sampled: 06/09/2004	Conductivity (umhos/cm): 275
Site Midpoint (Latitude, Longitude): 44.05452135, -103.40589571	Site Length (m): 102	pH:
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 8.4	Water Temperature (C): 10.0
Stream Classification: BR2	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)
Brown Trout	<200mm	167	166	183	167	1974	36	1627	799	32.10	2619	117.7	18.2
Brown Trout	>=200mm	15	15	17	15	178	28	147	72	24.75	237	248.5	155.4
Brown Trout	All	182	570	1226	182	6778	200	5588	2745	178.64	8991	128.5	29.5

Site Number: 1752	Date Sampled: 06/09/2004	Conductivity (umhos/cm): 255
Site Midpoint (Latitude, Longitude): 44.07974011, -103.42967056	Site Length (m): 105	pH:

Survey Completed by: South Dakota Game, Fish and Parks

Mean Width (m): 10.7

Water Temperature (C): 9.0

Stream Classification: BR2

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)
Brown Trout	<200mm	90	147	223	90	1380	20	1400	559	17.52	2253	104.7	14.2
Brown Trout	>=200mm	24	24	24	24	225	56	229	91	49.74	368	292.2	247.3
Brown Trout	All	114	140	166	114	1314	83	1333	532	74.26	2145	144.2	63.3

Site Number: 1812

Date Sampled: 06/24/2004

Conductivity (umhos/cm): 245

Site Midpoint (Latitude, Longitude): 44.07679180, -103.46254687

Site Length (m): 100

pH:

Survey Completed by: South Dakota Game, Fish and Parks

Mean Width (m): 10.1

Water Temperature (C): 17.0

Stream Classification: BR2

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)
Brown Trout	<200mm	210	613	1205	210	6064	72	6130	2456	64.71	9863	99.5	12.0
Brown Trout	>=200mm	9	9	9	9	89	32	90	36	28.37	145	318.1	356.9
Brown Trout	All	219	505	833	219	4996	131	5050	2023	116.83	8125	108.5	26.2

Site Number: 1833

Date Sampled: 10/13/2004

Conductivity (umhos/cm): 255

Site Midpoint (Latitude, Longitude): 44.07611720, -103.47551527

Site Length (m): 100

pH:

Survey Completed by: South Dakota Game, Fish and Parks

Mean Width (m): 9.3

Water Temperature (C): 9.0

Stream Classification: BK0, BR2, RB0

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	2	2	3	2	22	0	20	9	0.37	32	117.0	19.0
Brook Trout	All	2	2	3	2	22	0	20	9	0.37	32	117.0	19.0

Brown Trout	<200mm	372	492	559	425	5311	60	4920	2151	53.26	7916	92.1	11.2
Brown Trout	>=200mm	7	7	7	7	76	33	70	31	29.10	113	340.3	431.3
Brown Trout	All	379	491	553	429	5300	101	4910	2147	90.26	7900	96.6	19.1
Rainbow Trout	<200mm	4	4	6	4	43	0	40	17	0.11	64	62.5	2.8
Rainbow Trout	All	4	4	6	4	43	0	40	17	0.11	64	62.5	2.8

Site Number: 1843

Site Midpoint (Latitude, Longitude): 44.07203156, -103.47488319

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK0, BR2

Date Sampled: 07/07/2004

Site Length (m): 100

Mean Width (m): 7.6

Number of Pass: 3

Conductivity (umhos/cm): 265

pH: 8.7

Water Temperature (C): 11.5

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	4	4	4	4	52	0	40	21	0.30	64	91.8	6.5
Brook Trout	All	4	4	4	4	52	0	40	21	0.30	64	91.8	6.5
Brown Trout	<200mm	72	83	97	72	1087	9	830	440	8.07	1335	92.6	8.3
Brown Trout	>=200mm	9	9	9	9	118	48	90	48	42.98	145	338.0	408.4
Brown Trout	All	81	90	102	81	1179	62	900	477	55.54	1448	119.9	52.8

Site Number: 1853

Site Midpoint (Latitude, Longitude): 44.07655505, -103.48401117

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK3, BR2, RB2

Date Sampled: 07/07/2004

Site Length (m): 100

Mean Width (m): 11.4

Number of Pass: 4

Conductivity (umhos/cm): 255

pH: 8.5

Water Temperature (C): 9.0

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	24	24	25	24	211	7	240	85	6.05	386	136.1	32.1
Brook Trout	>=200mm	1	1	1	1	9	1	10	4	0.79	16	219.0	101.0

Brook Trout	All	25	25	26	25	220	8	250	89	6.84	402	139.4	34.8
Brown Trout	<200mm	33	40	53	33	352	5	400	142	4.65	644	102.1	14.8
Brown Trout	>=200mm	18	18	18	18	158	75	180	64	67.26	290	322.3	475.9
Brown Trout	All	51	53	58	51	466	83	530	189	73.89	853	179.8	177.6
Rainbow Trout	<200mm	6	7	13	6	62	1	70	25	0.88	113	103.5	16.0
Rainbow Trout	>=200mm	6	6	7	6	53	32	60	21	28.79	97	380.0	611.2
Rainbow Trout	All	12	13	17	12	114	36	130	46	32.01	209	241.8	313.6

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 Rapid Creek, 1994-2004

Site 1606

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 24, 2004	515	433-597	
Brown Trout >=200mm	Jun 24, 2004	1	1-1	BR3

Site 1656

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Sep 29, 1994	361	317-405	
	Oct 03, 1995	213	203-223	
	Oct 02, 1996	222	199-245	
	Sep 29, 1999	189	131-247	

Brown Trout <200mm	Oct 04, 2000	205	184-226	
	Oct 01, 2001	249	213-285	
	Oct 25, 2002	152	127-177	
	Jun 09, 2004	166	167-183	
Brown Trout >=200mm	Sep 29, 1994	101	99-105	BR1
	Oct 03, 1995	109	108-112	BR1
	Oct 02, 1996	79	68-94	BR1
	Sep 29, 1999	98	90-108	BR1
	Oct 04, 2000	84	84-85	BR1
	Oct 01, 2001	43	43-44	BR1
	Oct 25, 2002	30	30-30	BR1
	Jun 09, 2004	15	15-17	BR2

Site 1752

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 20, 1999	115	99-133	
	Jun 09, 2004	147	90-223	

Brown Trout >=200mm	Oct 20, 1999	138	135-143	BR1
	Jun 09, 2004	24	24-24	BR2

Site 1812

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 18, 1999	1	1-2	
Brown Trout <200mm	Oct 18, 1999	120	92-152	
	Jun 24, 2004	613	210-1205	
Brown Trout >=200mm	Oct 18, 1999	70	68-74	BR1
	Jun 24, 2004	9	9-9	BR2

Site 1833

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 16, 1996	2	2-4	
	Oct 28, 1997	2	2-2	
	Oct 14, 1999	2	2-3	
	Oct 03, 2000	3	3-4	
	Oct 02, 2001	7	7-8	
	Oct 28, 2002	2	2-4	

Brook Trout <200mm	Oct 13, 2004	2	2-3	
Brook Trout >=200mm	Oct 28, 1997	1	1-2	BK3
Brown Trout <200mm	Oct 16, 1996	293	275-311	
	Oct 28, 1997	128	105-152	
	Oct 23, 1998	76	66-90	
	Oct 14, 1999	48	40-62	
	Oct 03, 2000	107	82-137	
	Oct 02, 2001	222	110-383	
	Oct 28, 2002	84	71-101	
	Oct 13, 2004	492	425-559	
Brown Trout >=200mm	Oct 16, 1996	30	30-31	BR2
	Oct 28, 1997	32	32-33	BR2
	Oct 23, 1998	66	65-69	BR1
	Oct 14, 1999	61	61-62	BR1
	Oct 03, 2000	89	89-91	BR1
	Oct 02, 2001	62	62-63	BR1

Brown Trout >=200mm	Oct 28, 2002	37	36-40	BR1
	Oct 13, 2004	7	7-7	BR2
Rainbow Trout <200mm	Oct 23, 1998	1	1-1	
	Oct 14, 1999	5	5-7	
	Oct 03, 2000	9	9-11	
	Oct 02, 2001	1	1-1	
	Oct 28, 2002	2	2-3	
	Oct 13, 2004	4	4-6	
Rainbow Trout >=200mm	Oct 14, 1999	1	1-1	RB2
	Oct 03, 2000	1	1-1	RB2
	Oct 02, 2001	3	3-4	RB2
	Oct 28, 2002	1	1-5	RB2

Site 1843

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 28, 1994	38	36-43	
	Oct 04, 1995	40	39-43	

Brook Trout <200mm	Sep 27, 1996	14	12-21	
	Oct 22, 1997	13	5-87	
	Oct 04, 1999	1	1-1	
	Oct 01, 2001	8	7-14	
	Oct 25, 2002	6	6-6	
	Jul 07, 2004	4	4-4	
Brook Trout >=200mm	Sep 28, 1994	7	7-7	BK2
	Oct 04, 1995	7	7-7	BK2
	Oct 22, 1997	2	2-4	BK3
Brown Trout <200mm	Sep 28, 1994	130	121-140	
	Oct 04, 1995	125	83-180	
	Sep 27, 1996	810	431-1189	
	Oct 22, 1997	241	171-311	
	Oct 23, 1998	94	81-110	
	Oct 04, 1999	27	24-34	
	Oct 02, 2000	21	16-36	

Brown Trout <200mm	Oct 01, 2001	53	28-121	
	Oct 25, 2002	31	25-44	
	Jul 07, 2004	83	72-97	
Brown Trout >=200mm	Sep 28, 1994	48	47-51	BR1
	Oct 04, 1995	28	28-28	BR1
	Sep 27, 1996	11	10-16	BR2
	Oct 22, 1997	46	42-53	BR1
	Oct 23, 1998	152	117-187	BR1
	Oct 04, 1999	68	67-71	BR1
	Oct 02, 2000	37	36-40	BR1
	Oct 01, 2001	58	58-58	BR1
	Oct 25, 2002	38	38-39	BR1
	Jul 07, 2004	9	9-9	BR2
Rainbow Trout <200mm	Sep 27, 1996	1	1-5	
	Oct 23, 1998	7	7-7	
	Oct 04, 1999	4	4-5	

Rainbow Trout <200mm	Oct 02, 2000	2	2-6	
Rainbow Trout >=200mm	Oct 23, 1998	1	1-2	RB2
	Oct 02, 2000	1	1-2	RB2
	Oct 01, 2001	1	1-1	RB2

Site 1853

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 22, 1998	16	13-26	
	Oct 04, 1999	18	18-20	
	Oct 03, 2000	11	12-15	
	Oct 02, 2001	17	17-17	
	Sep 23, 2002	18	18-20	
	Jul 07, 2004	24	24-25	
Brook Trout >=200mm	Oct 22, 1998	1	1-1	BK3
	Oct 04, 1999	3	3-4	BK3
	Oct 03, 2000	6	6-9	BK2
	Oct 02, 2001	10	8-19	BK2

Brook Trout >=200mm	Sep 23, 2002	3	3-4	BK3
	Jul 07, 2004	1	1-1	BK3
Brown Trout <200mm	Sep 28, 1994	165	141-189	
	Oct 04, 1995	56	53-62	
	Oct 02, 1996	156	126-186	
	Oct 22, 1997	263	118-483	
	Oct 22, 1998	148	94-216	
	Oct 04, 1999	67	63-74	
	Oct 03, 2000	42	42-43	
	Oct 02, 2001	81	72-93	
	Sep 23, 2002	68	48-101	
	Jul 07, 2004	40	33-53	
Brown Trout >=200mm	Sep 28, 1994	57	55-62	BR1
	Oct 04, 1995	27	27-28	BR2
	Oct 02, 1996	17	17-19	BR2
	Oct 22, 1997	44	39-54	BR1

Brown Trout >=200mm	Oct 22, 1998	76	53-113	BR1
	Oct 04, 1999	51	50-54	BR1
	Oct 03, 2000	35	34-39	BR2
	Oct 02, 2001	53	53-55	BR1
	Sep 23, 2002	28	28-28	BR2
	Jul 07, 2004	18	18-18	BR2
Rainbow Trout <200mm	Sep 28, 1994	2	2-3	
	Oct 04, 1995	25	24-29	
	Oct 02, 1996	28	28-29	
	Oct 22, 1997	2	2-2	
	Oct 22, 1998	1	1-2	
	Oct 04, 1999	44	34-63	
	Oct 03, 2000	118	93-146	
	Oct 02, 2001	43	43-45	
	Sep 23, 2002	5	5-7	
	Jul 07, 2004	7	6-13	

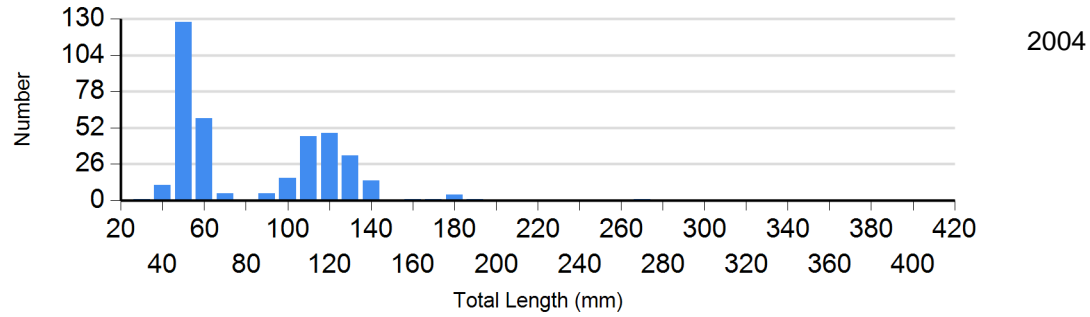
Rainbow Trout >=200mm	Sep 28, 1994	13	5-87	RB1
	Oct 04, 1995	1	1-2	RB2
	Oct 02, 1996	5	3-24	RB2
	Oct 22, 1997	3	3-4	RB2
	Oct 22, 1998	4	4-7	RB2
	Oct 04, 1999	3	3-5	RB2
	Oct 03, 2000	26	24-32	RB1
	Oct 02, 2001	20	20-21	RB1
	Sep 23, 2002	24	24-25	RB1
	Jul 07, 2004	6	6-7	RB2

Length Frequency Distribution

Length frequency histogram of species sampled by year.

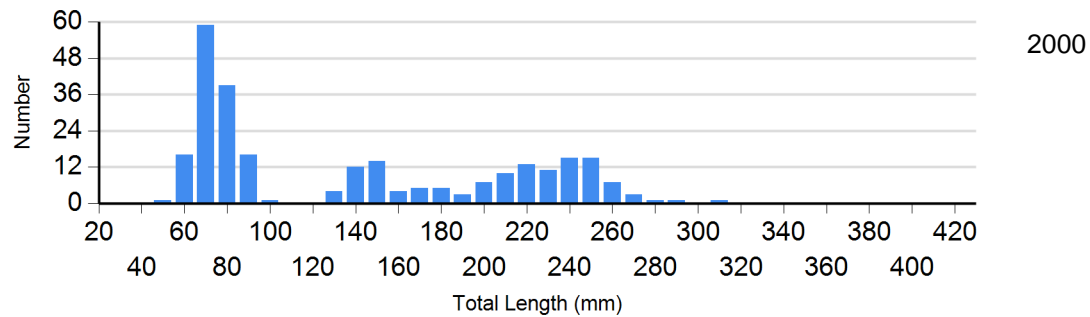
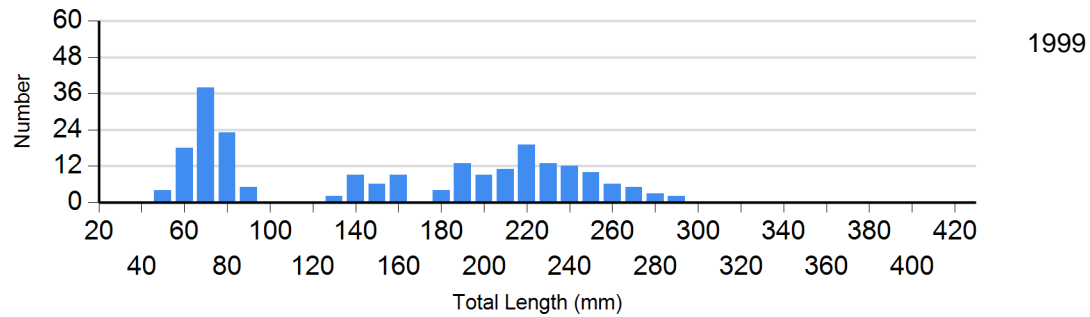
Site: 1606

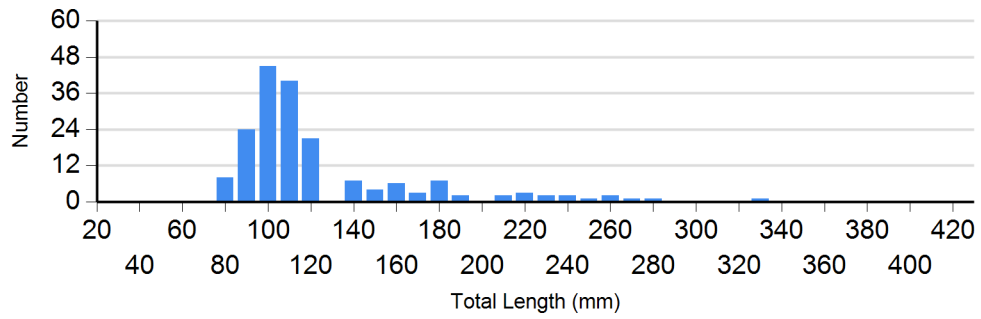
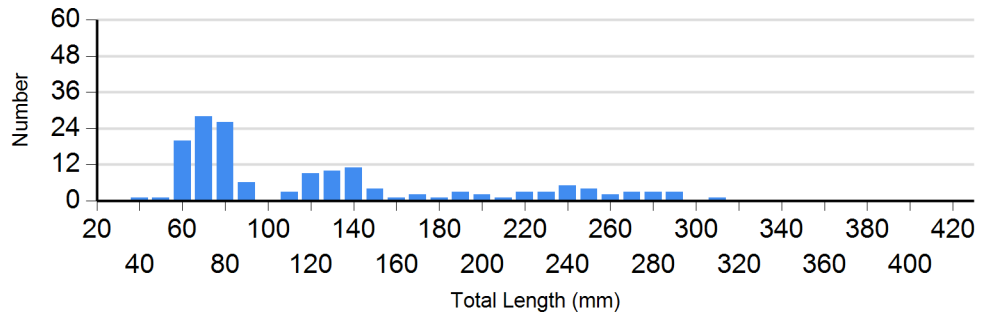
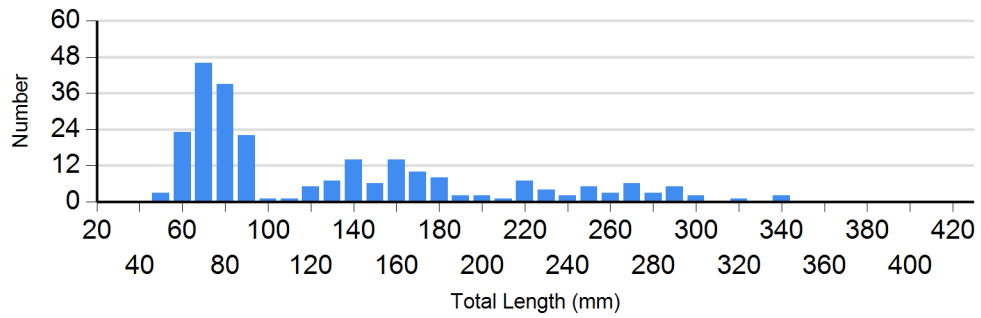
Species: Brown Trout



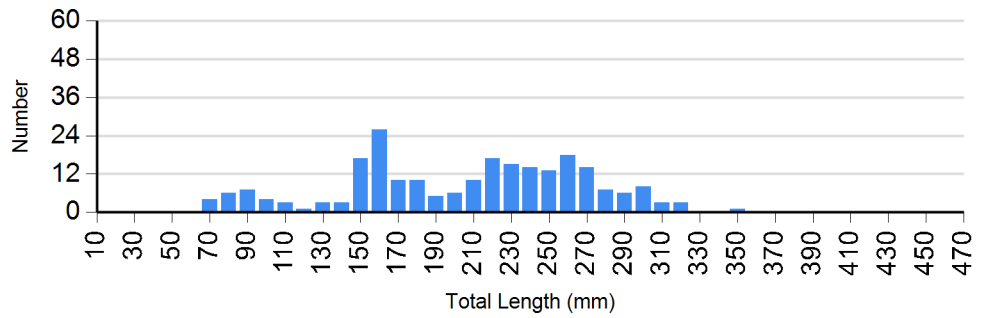
Site: 1656

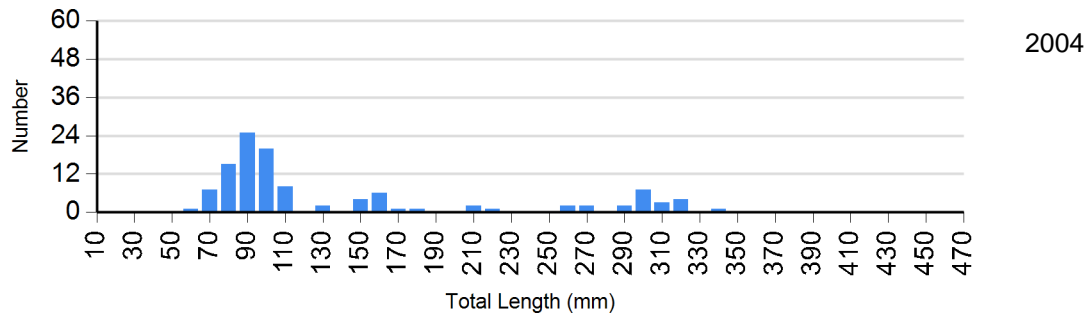
Species: Brown Trout



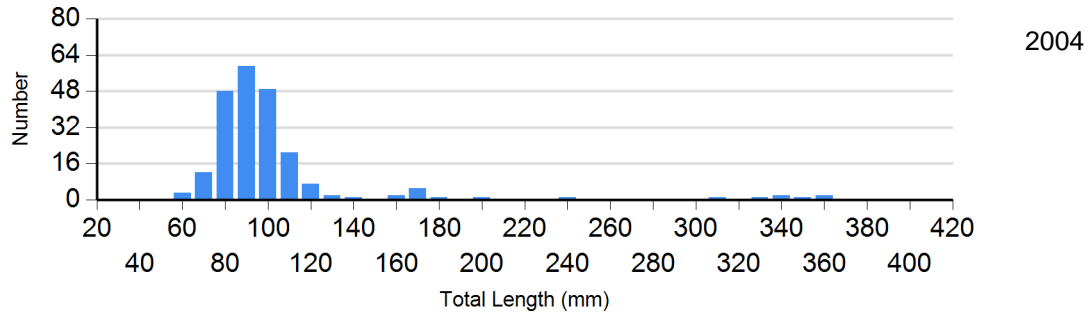
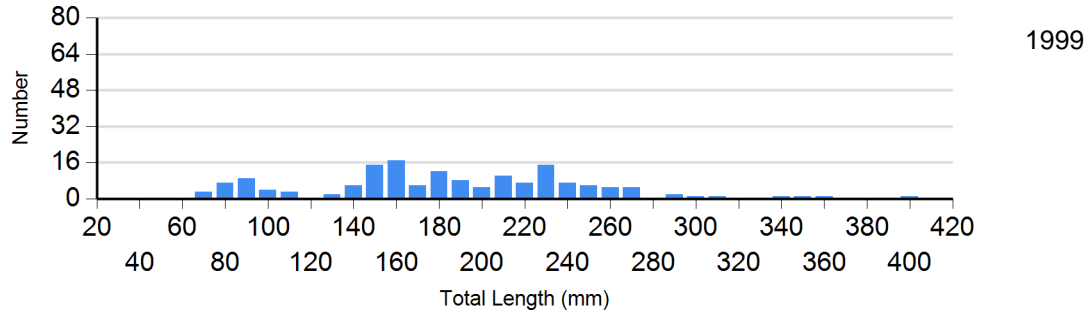


Site: 1752
Species: Brown Trout

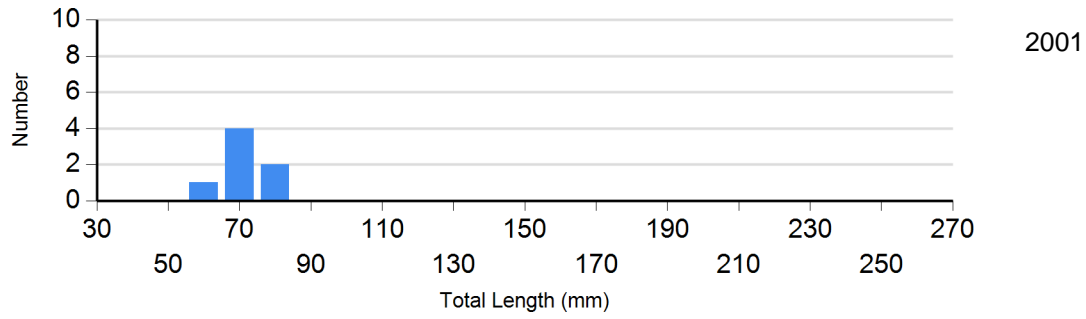




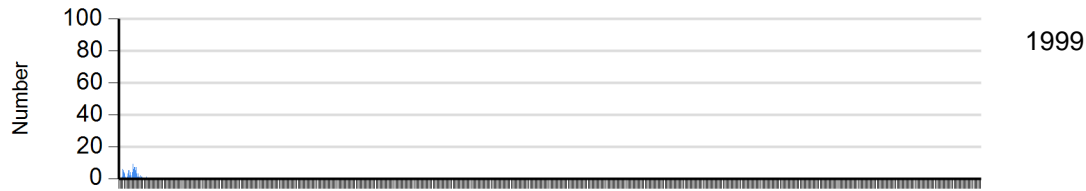
Site: 1812
Species: Brown Trout



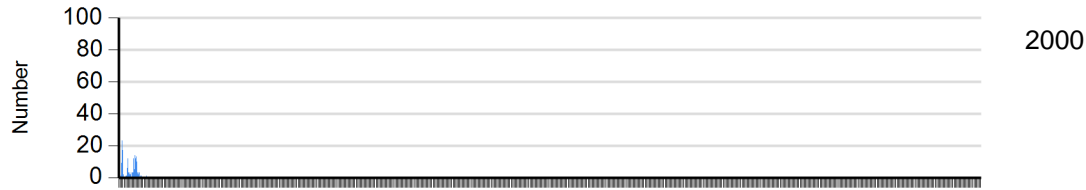
Site: 1833
Species: Brook Trout



Site: 1833
Species: Brown Trout



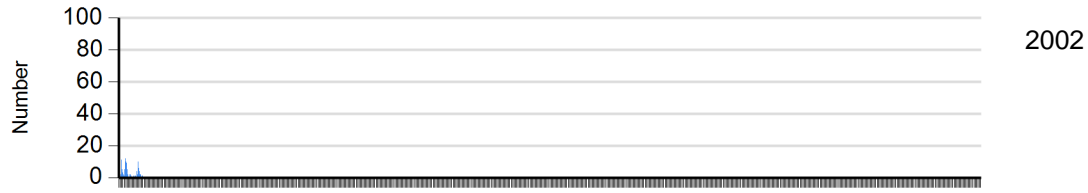
Total Length (mm)



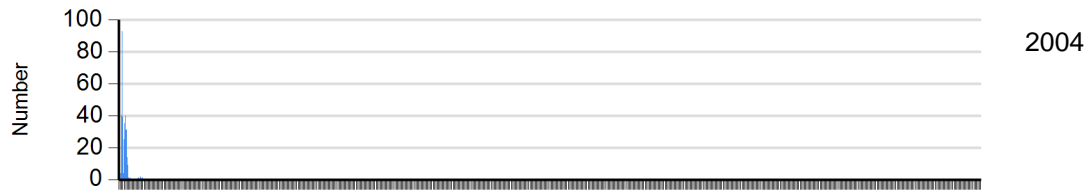
Total Length (mm)



Total Length (mm)

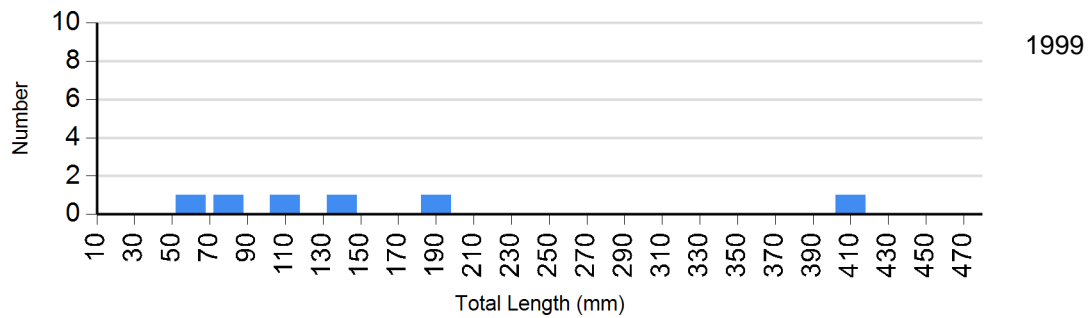


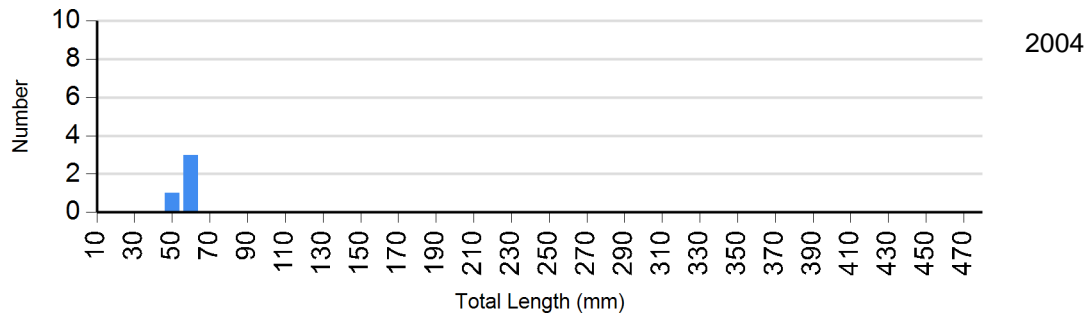
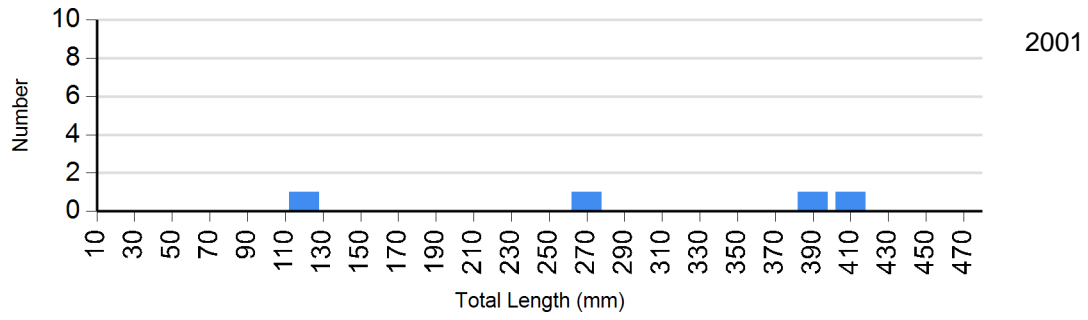
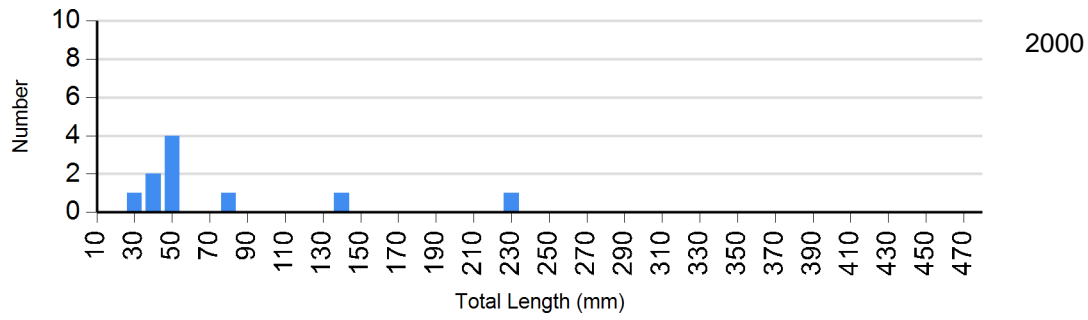
Total Length (mm)



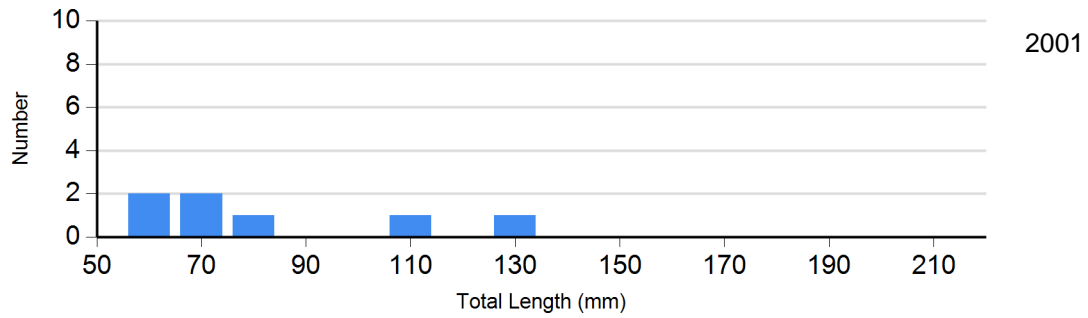
Total Length (mm)

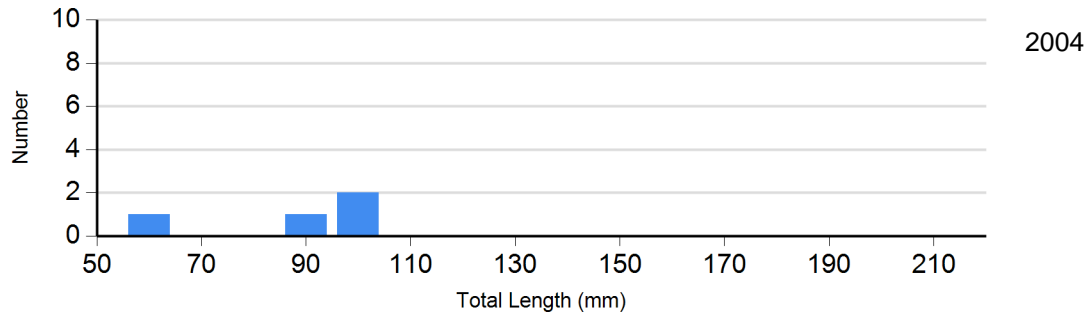
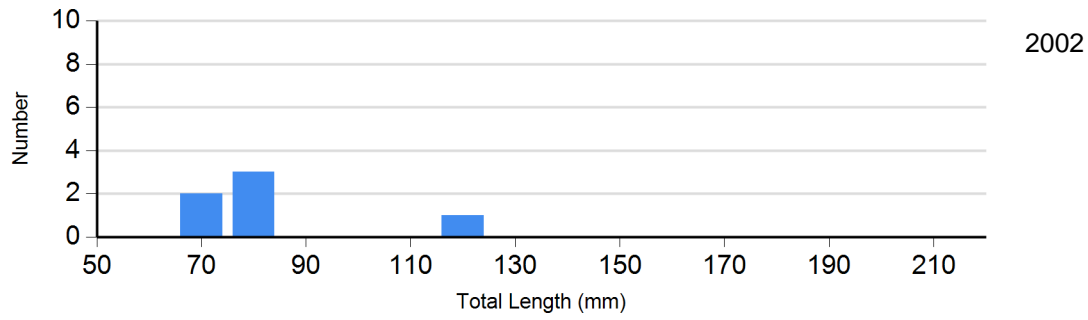
Site: 1833
Species: Rainbow Trout



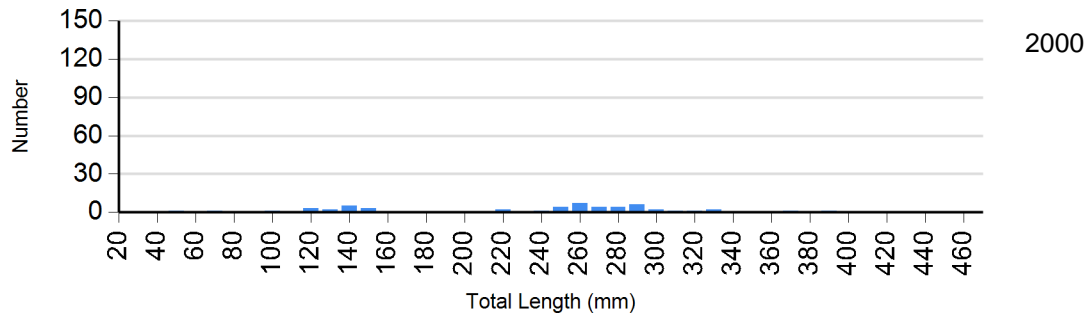
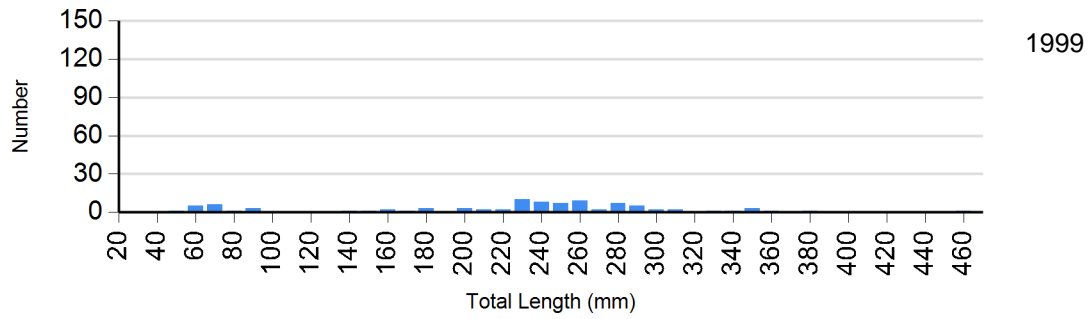


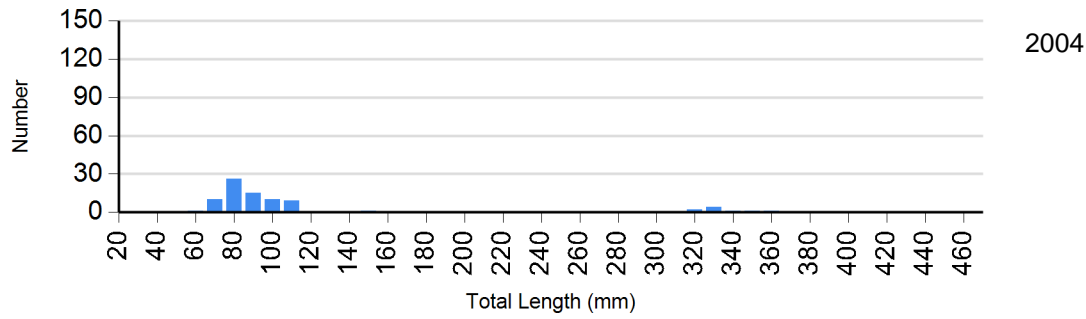
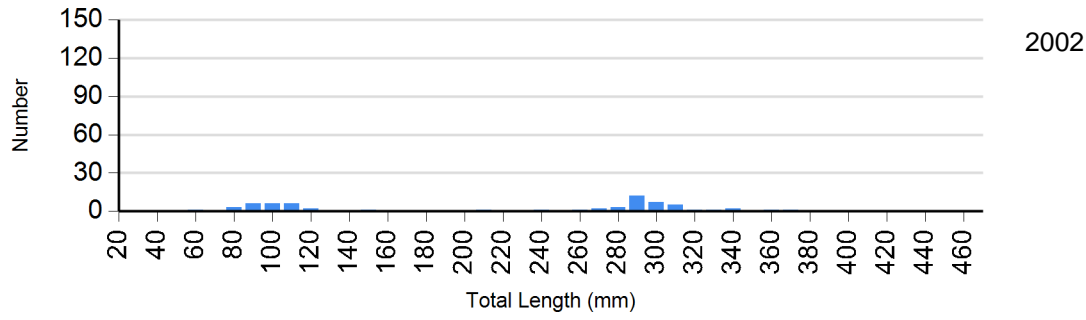
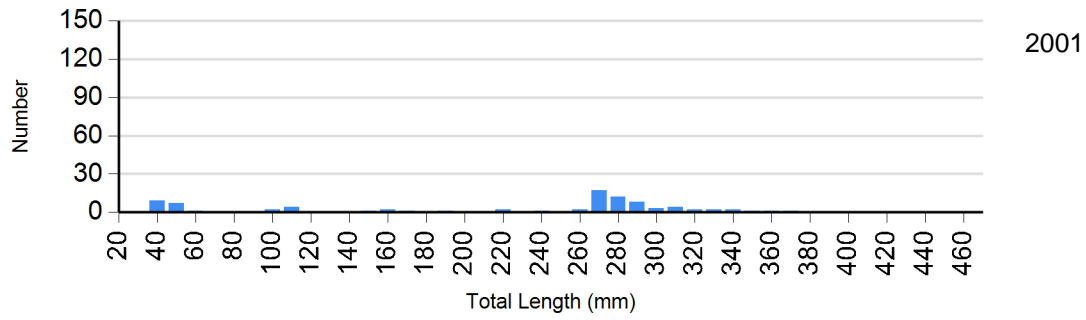
Site: 1843
Species: Brook Trout



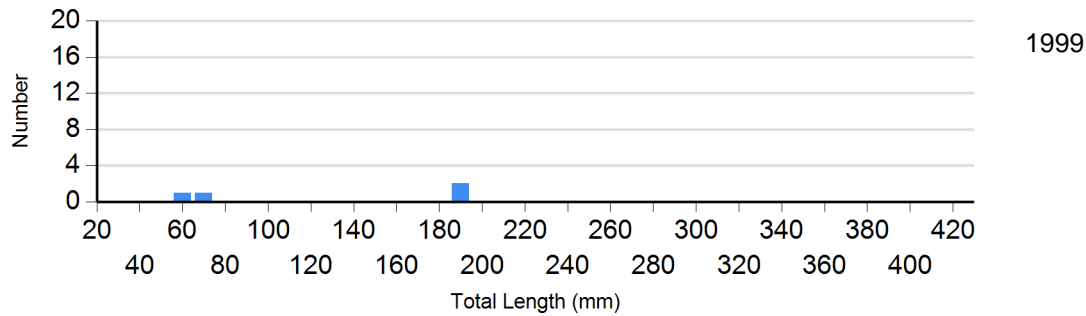


Site: 1843
Species: Brown Trout

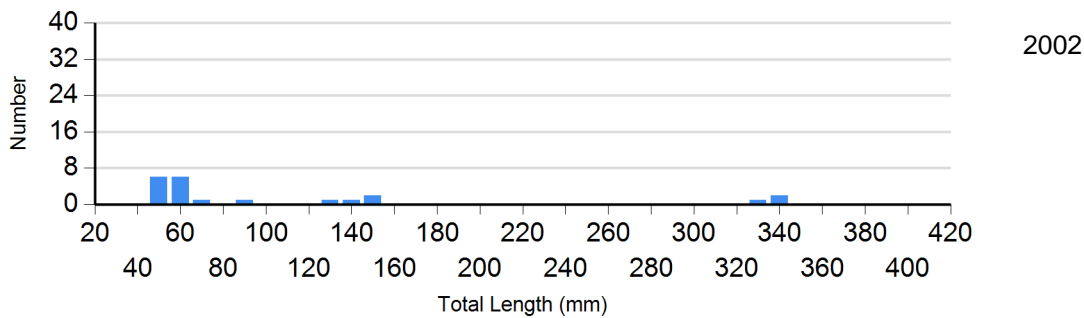
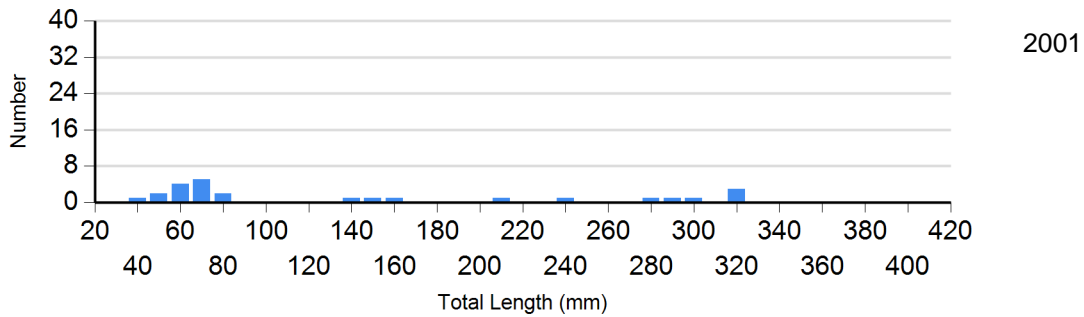
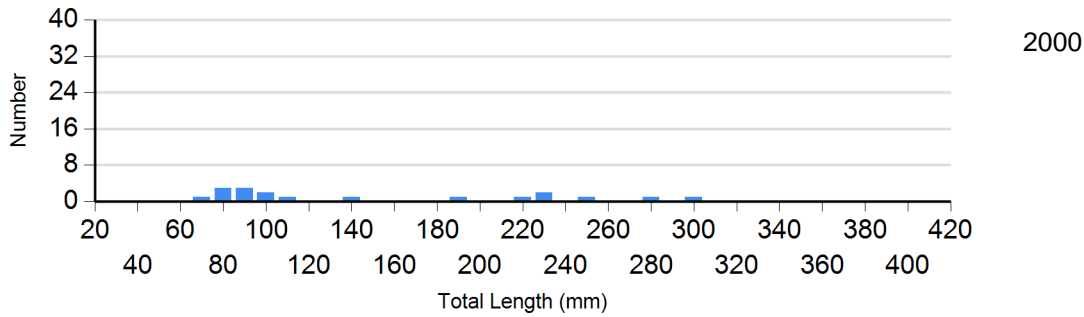
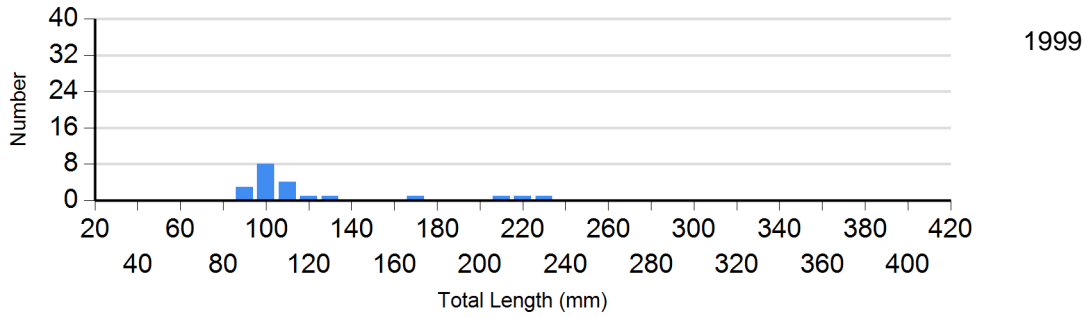


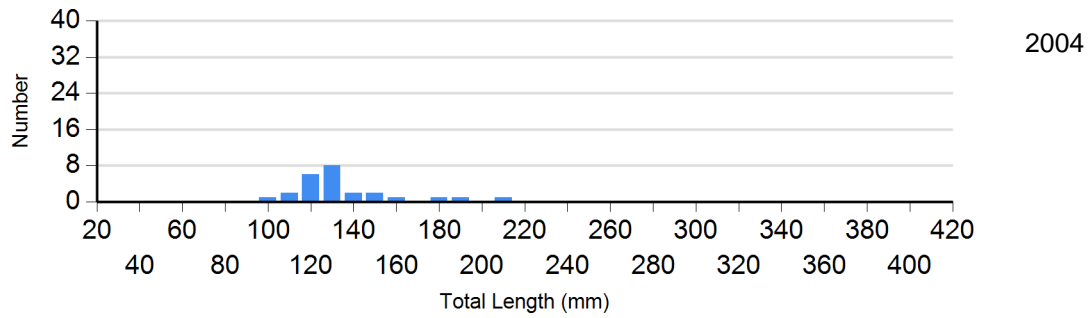


Site: 1843
Species: Rainbow Trout

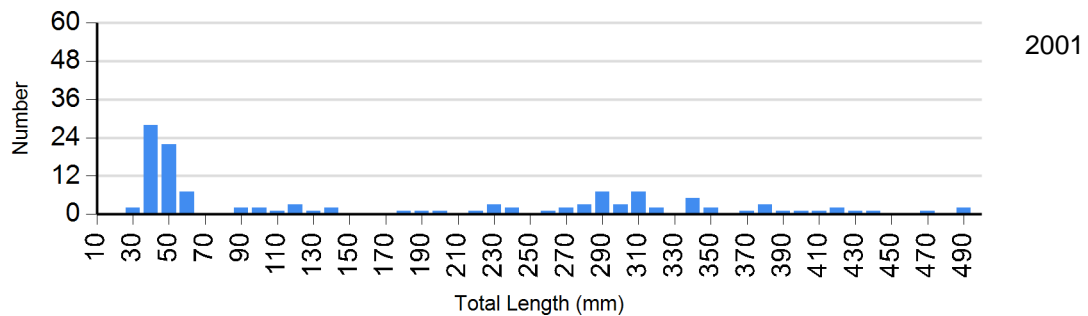
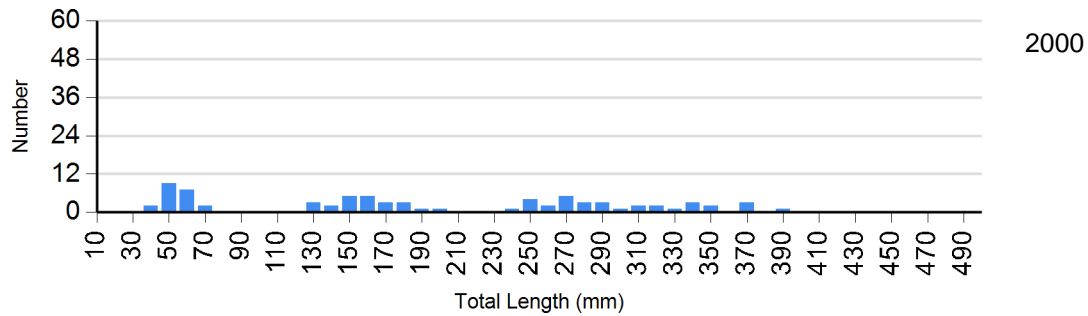
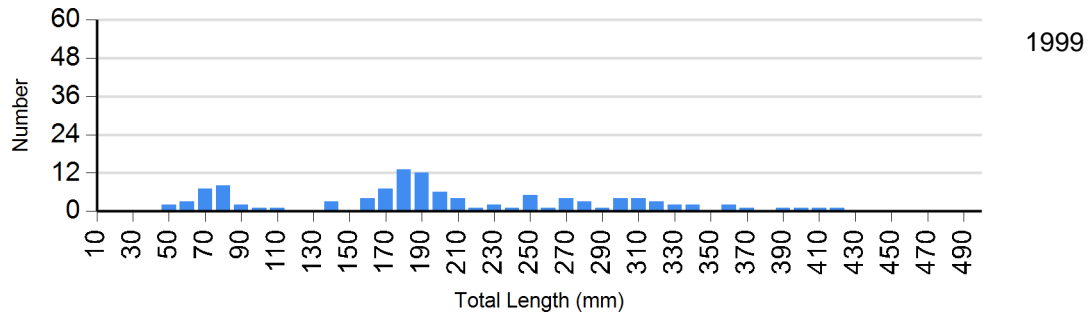


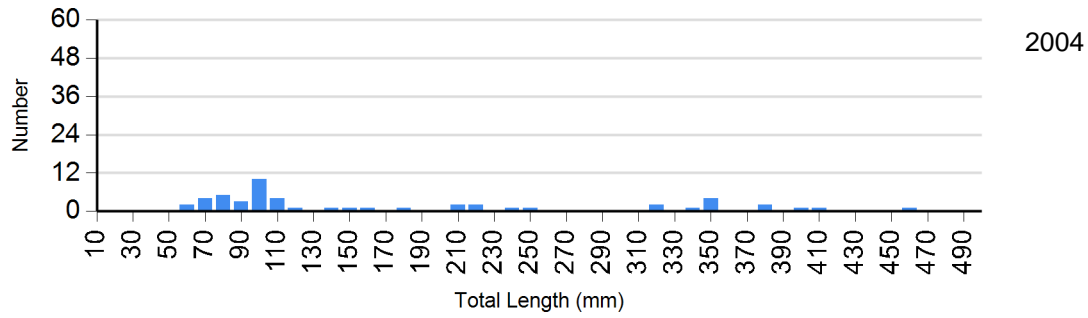
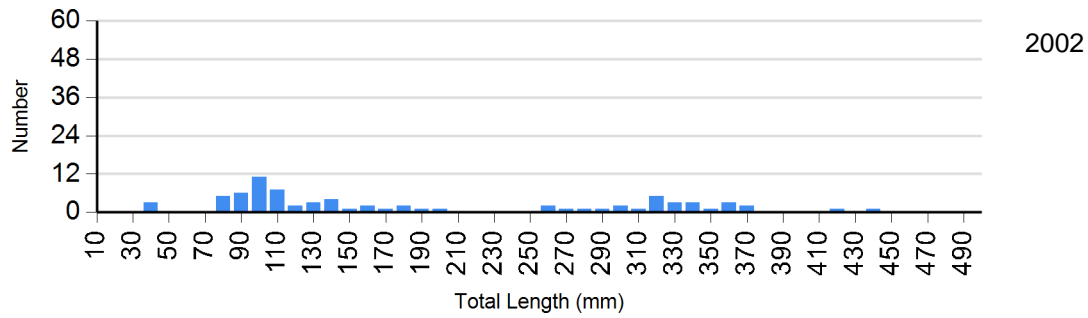
Site: 1853
Species: Brook Trout





Site: 1853
Species: Brown Trout





Site: 1853
Species: Rainbow Trout

