

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Castle Creek, Pennington County
02-0071-00
2004

Table 1. Population and Biomass Estimates for Castle Creek

Site Number: 373	Date Sampled: 09/29/2004	Conductivity (umhos/cm): 280
Site Midpoint (Latitude, Longitude): 44.05014956, -103.77144194	Site Length (m): 100	pH: 9.1
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 5.3	Water Temperature (C): 10.0
Stream Classification: BK2, BR1	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	44	44	44	44	830	20	440	336	18.03	708	126.9	24.3
Brook Trout	>=200mm	7	7	7	7	132	13	70	53	11.32	113	208.7	96.0
Brook Trout	All	51	51	51	51	962	33	510	390	29.35	821	138.1	34.2
Brown Trout	<200mm	137	138	141	137	2604	60	1380	1055	53.86	2220	120.1	23.2
Brown Trout	>=200mm	28	28	28	28	528	97	280	214	86.59	451	253.8	183.6
Brown Trout	All	165	166	169	165	3132	158	1660	1268	140.91	2671	142.8	50.4

Site Number: 379	Date Sampled: 09/29/2004	Conductivity (umhos/cm): 285
Site Midpoint (Latitude, Longitude): 44.04695810, -103.77288355	Site Length (m): 100	pH: 9.3
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 0.0	Water Temperature (C): 13.0
Stream Classification: BK3, 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)
Brook Trout	<200mm	89	91	95	89	0	0	910	0	0.00	1464	106.0	14.2
Brook Trout	>=200mm	2	2	2	2	0	0	20	0	0.00	32	205.0	92.0
Brook Trout	All	91	93	97	91	0	0	930	0	0.00	1496	108.2	15.9

Brown Trout	<200mm	139	143	149	139	0	0	1430	0	0.00	2301	104.6	16.0
Brown Trout	>=200mm	16	16	16	16	0	0	160	0	0.00	257	270.6	218.9
Brown Trout	All	155	159	164	155	0	0	1590	0	0.00	2558	121.7	36.9

Site Number: 384
Site Midpoint (Latitude, Longitude): 44.04396904, -103.77363060
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK2, BR1

Date Sampled: 09/30/2004 **Conductivity (umhos/cm):** 270
Site Length (m): 100
Mean Width (m): 4.7 **pH:** 9.2
Number of Pass: 3 **Water Temperature (C):** 10.5
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	39	39	40	39	825	19	390	334	17.00	628	121.8	23.1
Brook Trout	>=200mm	4	4	4	4	85	9	40	34	7.69	64	213.8	101.8
Brook Trout	All	43	43	45	43	910	28	430	368	24.69	692	130.3	30.4
Brown Trout	<200mm	194	197	202	194	4167	98	1970	1688	87.84	3170	118.3	23.6
Brown Trout	>=200mm	40	40	41	40	846	204	400	343	181.83	644	275.7	240.7
Brown Trout	All	234	237	242	234	5013	304	2370	2030	271.78	3813	145.2	60.7

Site Number: 417
Site Midpoint (Latitude, Longitude): 44.03016917, -103.78286708
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK1, BR2

Date Sampled: 09/30/2004 **Conductivity (umhos/cm):** 275
Site Length (m): 100
Mean Width (m): 6.2 **pH:** 8.6
Number of Pass: 3 **Water Temperature (C):** 11.0
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	95	98	103	95	1592	43	980	645	38.79	1577	127.4	27.3
Brook Trout	>=200mm	122	122	123	122	1982	418	1220	803	372.95	1963	260.8	210.7
Brook Trout	All	217	219	223	217	3558	464	2190	1441	414.33	3524	202.4	130.4

Brown Trout	<200mm	11	11	11	11	179	11	110	72	9.87	177	175.5	61.8
Brown Trout	>=200mm	18	18	19	18	292	68	180	118	60.45	290	280.6	231.5
Brown Trout	All	29	29	30	29	471	79	290	191	70.32	467	240.7	167.1

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 Castle Creek, 1994-2004

Site 373

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 23, 2002	93	91-97	
	Sep 24, 2003	32	31-35	
	Sep 29, 2004	44	44-44	
Brook Trout >=200mm	Sep 23, 2002	3	3-5	BK3
	Sep 24, 2003	4	4-7	BK2
	Sep 29, 2004	7	7-7	BK2
Brown Trout <200mm	Sep 23, 2002	69	66-74	

Brown Trout <200mm	Sep 24, 2003	54	48-64	
	Sep 29, 2004	138	137-141	
Brown Trout >=200mm	Sep 23, 2002	29	29-31	BR1
	Sep 24, 2003	32	32-32	BR1
	Sep 29, 2004	28	28-28	BR1

Site 379

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 18, 2002	102	70-146	
	Sep 24, 2003	35	34-39	
	Sep 29, 2004	91	89-95	
Brook Trout >=200mm	Sep 18, 2002	5	5-5	BK2
	Sep 24, 2003	2	2-3	BK3
	Sep 29, 2004	2	2-2	BK3
Brown Trout <200mm	Sep 18, 2002	93	84-105	
	Sep 24, 2003	62	60-66	
	Sep 29, 2004	143	139-149	

Brown Trout >=200mm	Sep 18, 2002	20	19-24	BR1
	Sep 24, 2003	21	21-23	BR1
	Sep 29, 2004	16	16-16	BR3

Site 384

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Nov 07, 1994	81	81-83	
	Sep 05, 1995	60	59-63	
	Sep 16, 1996	30	30-32	
	Sep 12, 1997	65	49-90	
	Sep 23, 1998	95	77-117	
	Sep 20, 1999	101	76-133	
	Sep 25, 2000	164	159-170	
	Sep 17, 2002	70	59-86	
	Sep 30, 2004	39	39-40	
Brook Trout >=200mm	Nov 07, 1994	12	12-13	BK2
	Sep 05, 1995	30	30-31	BK1

Brook Trout >=200mm	Sep 16, 1996	25	25-27	BK1
	Sep 12, 1997	24	23-28	BK1
	Sep 23, 1998	38	34-46	BK1
	Sep 20, 1999	28	26-34	BK1
	Sep 25, 2000	35	34-38	BK1
	Sep 17, 2002	6	6-6	BK2
	Sep 30, 2004	4	4-4	BK2
Brown Trout <200mm	Nov 07, 1994	10	10-10	
	Sep 05, 1995	6	6-8	
	Sep 16, 1996	4	4-5	
	Sep 12, 1997	28	13-95	
	Sep 23, 1998	41	29-67	
	Sep 20, 1999	39	34-49	
	Sep 25, 2000	43	43-45	
	Sep 17, 2002	60	60-62	
	Sep 30, 2004	197	194-202	

Brown Trout >=200mm	Nov 07, 1994	47	43-55	BR1
	Sep 05, 1995	43	43-45	BR1
	Sep 16, 1996	32	29-39	BR1
	Sep 12, 1997	33	27-46	BR1
	Sep 23, 1998	40	40-41	BR1
	Sep 20, 1999	67	61-76	BR1
	Sep 25, 2000	60	60-62	BR1
	Sep 17, 2002	56	56-58	BR1
	Sep 30, 2004	40	40-41	BR1

Site 417

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 24, 1996	31	31-32	
	Sep 18, 1997	35	27-52	
	Sep 22, 1998	142	90-209	
	Sep 27, 1999	72	72-74	
	Sep 27, 2000	199	185-213	

Brook Trout <200mm	Sep 17, 2002	114	105-125	
	Sep 30, 2004	98	95-103	
Brook Trout >=200mm	Sep 24, 1996	104	104-106	BK1
	Sep 18, 1997	112	96-130	BK1
	Sep 22, 1998	150	131-169	BK1
	Sep 27, 1999	189	188-191	BK1
	Sep 27, 2000	271	266-277	BK1
	Sep 17, 2002	155	155-156	BK1
	Sep 30, 2004	122	122-123	BK1
Brown Trout <200mm	Sep 22, 1998	1	1-1	
	Sep 17, 2002	18	18-19	
	Sep 30, 2004	11	11-11	
Brown Trout >=200mm	Sep 24, 1996	8	8-8	BR2
	Sep 18, 1997	8	8-10	BR2
	Sep 22, 1998	4	4-6	BR2
	Sep 27, 1999	16	16-16	BR2

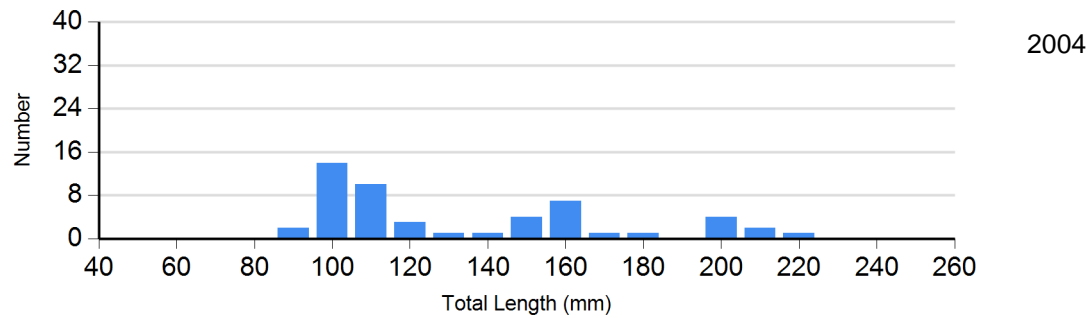
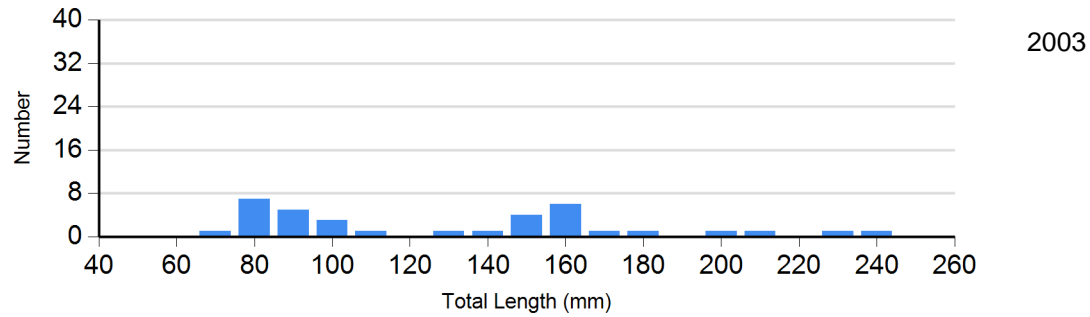
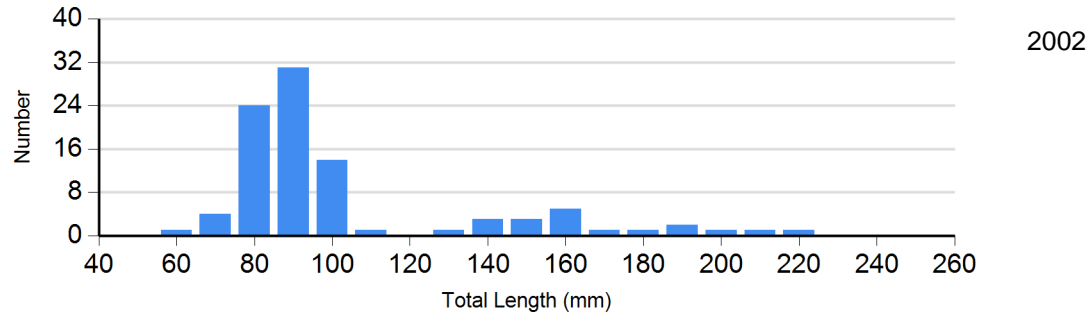
Brown Trout >=200mm	Sep 27, 2000	15	15-17	BR2
	Sep 17, 2002	16	16-17	BR2
	Sep 30, 2004	18	18-19	BR2

Length Frequency Distribution

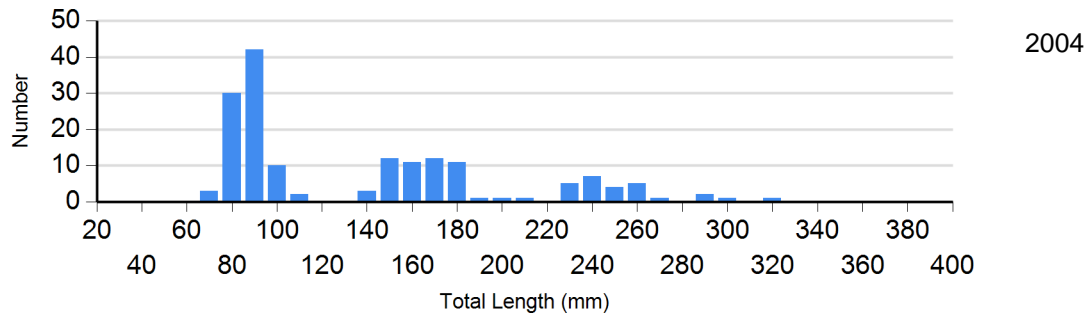
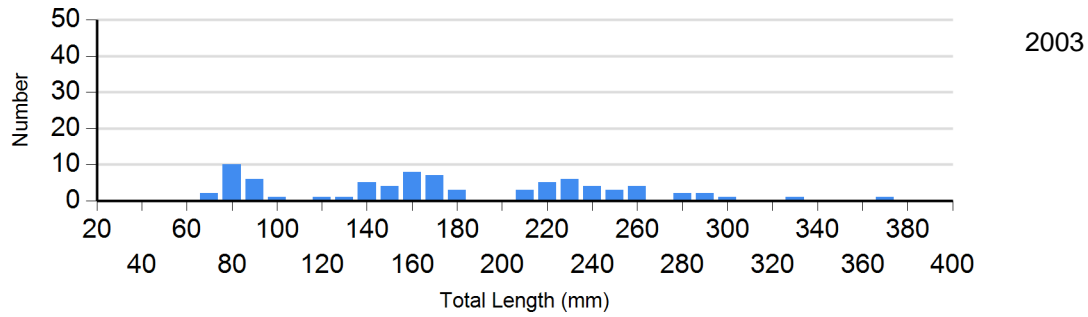
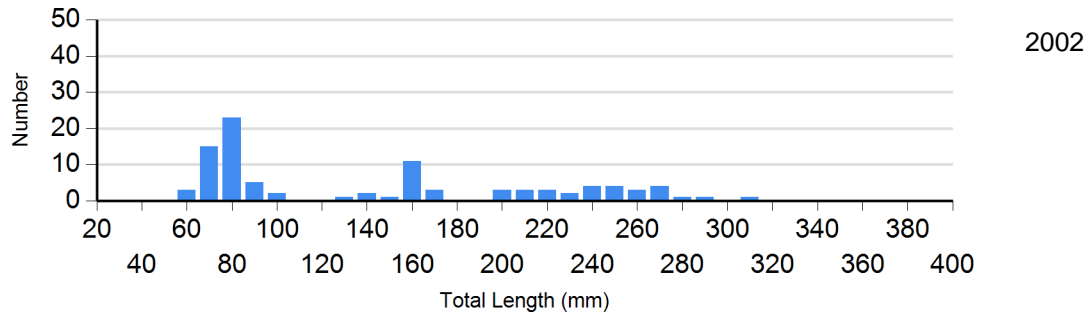
Length frequency histogram of species sampled by year.

Site: 373

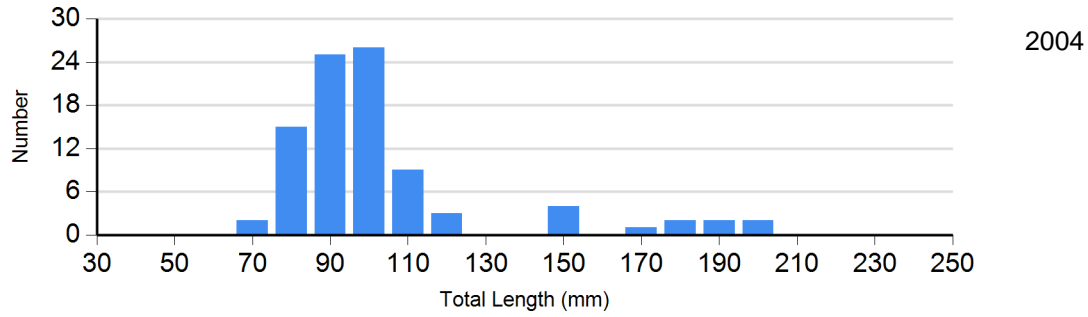
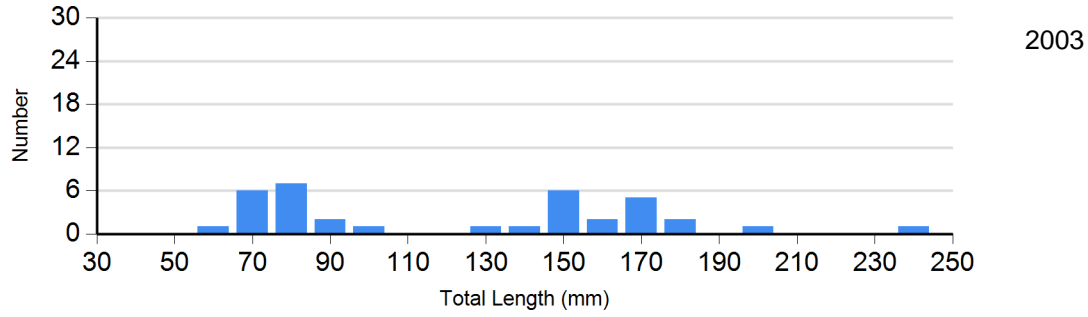
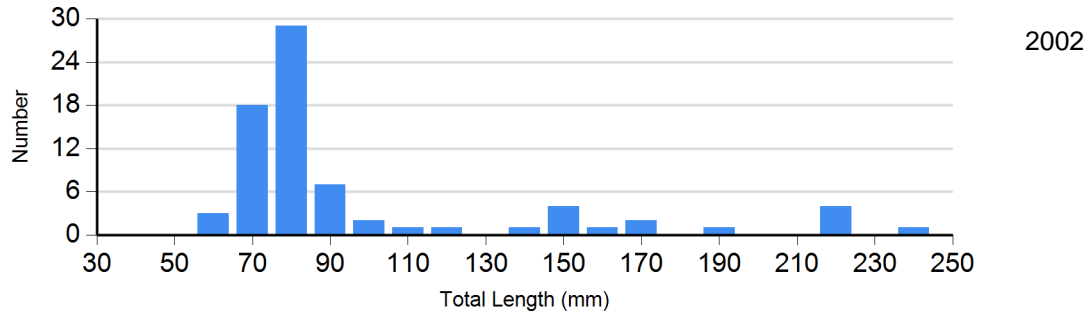
Species: Brook Trout



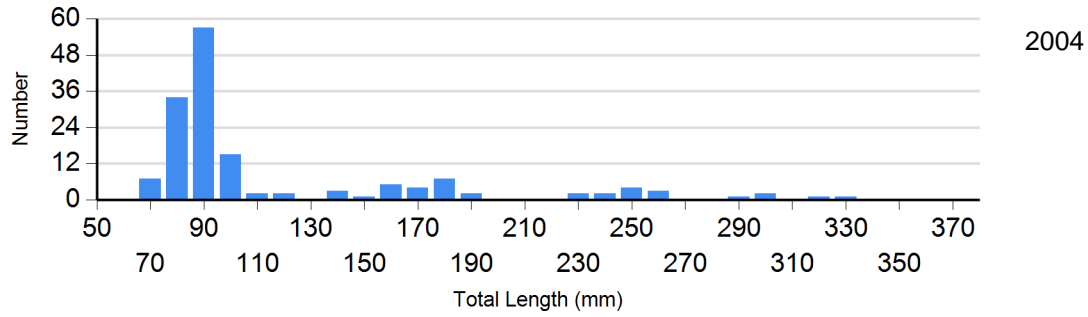
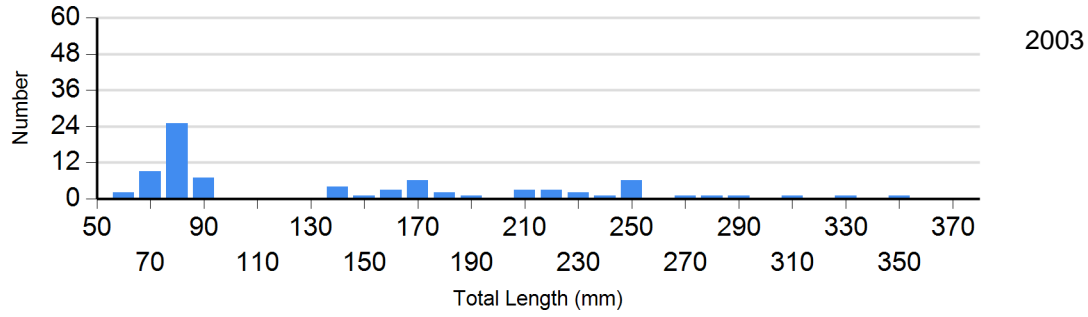
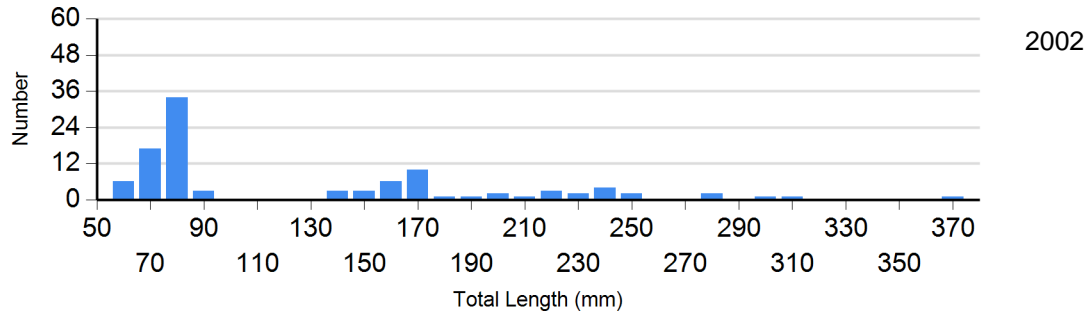
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Species: Brown Trout



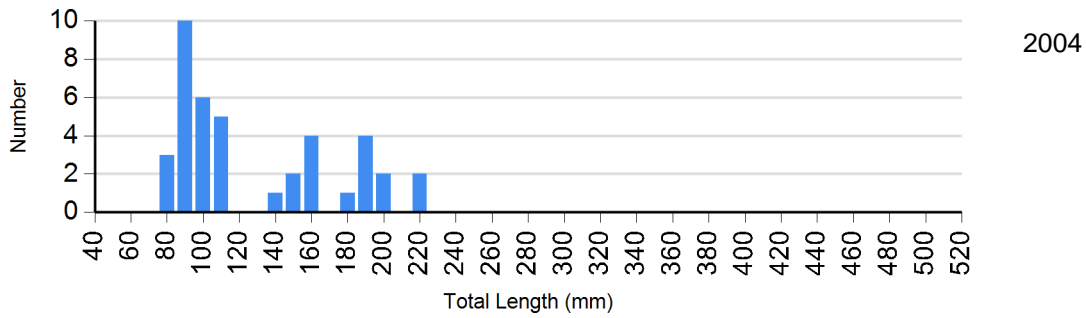
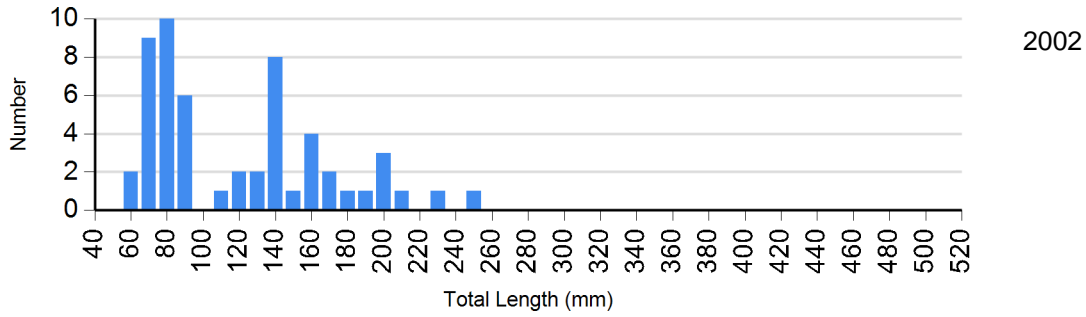
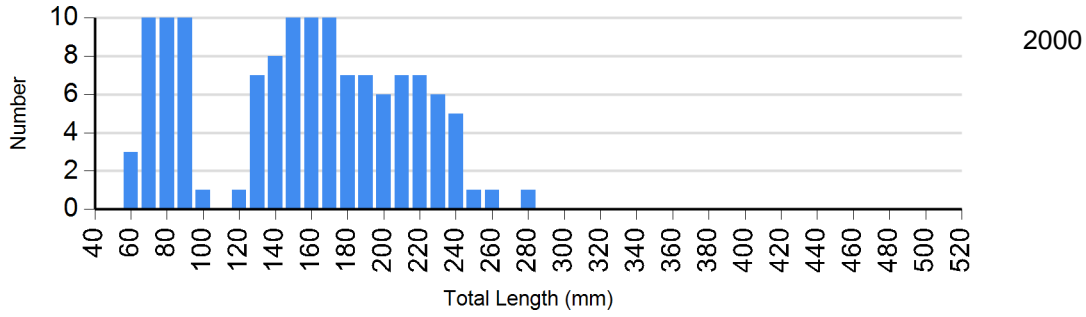
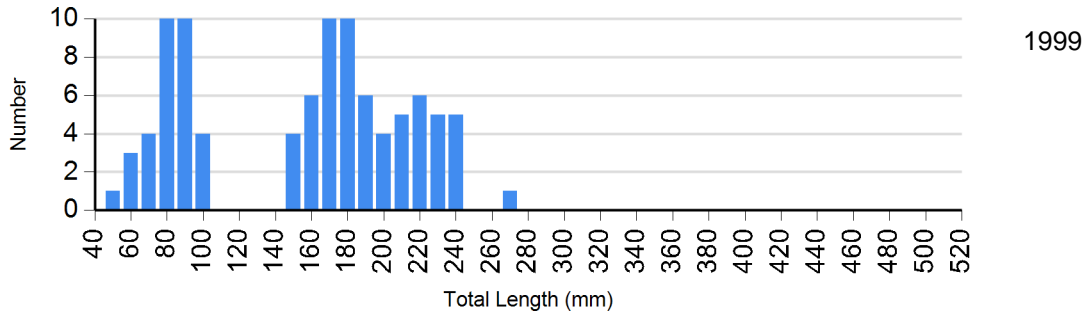
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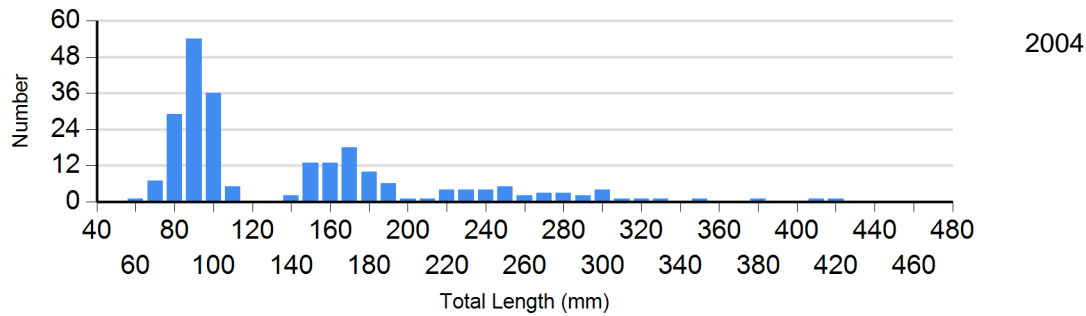
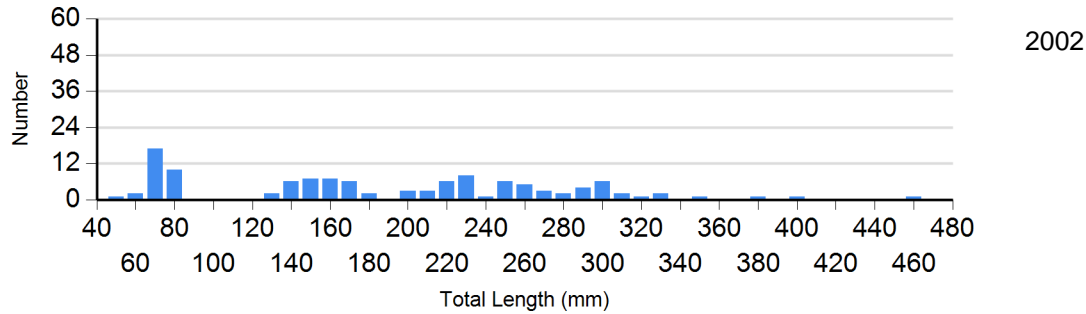
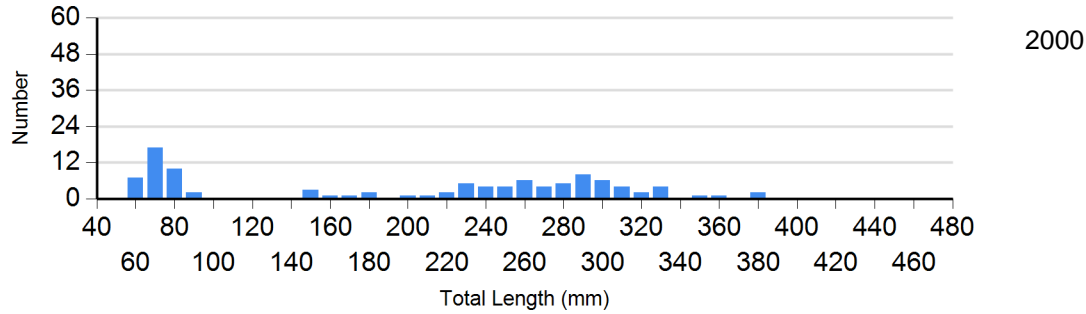
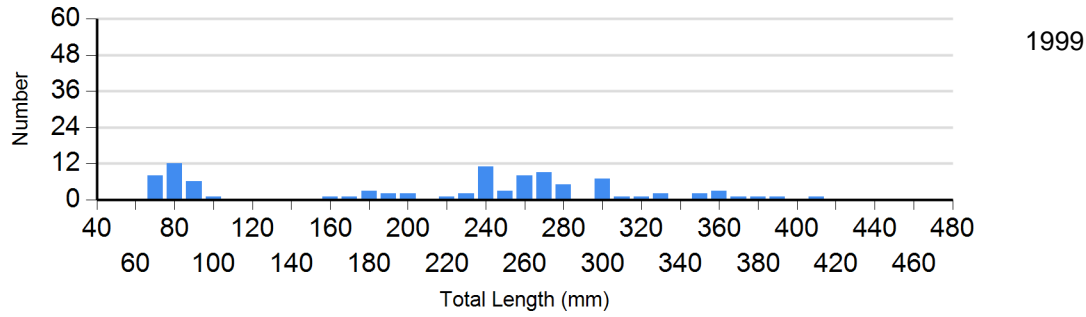
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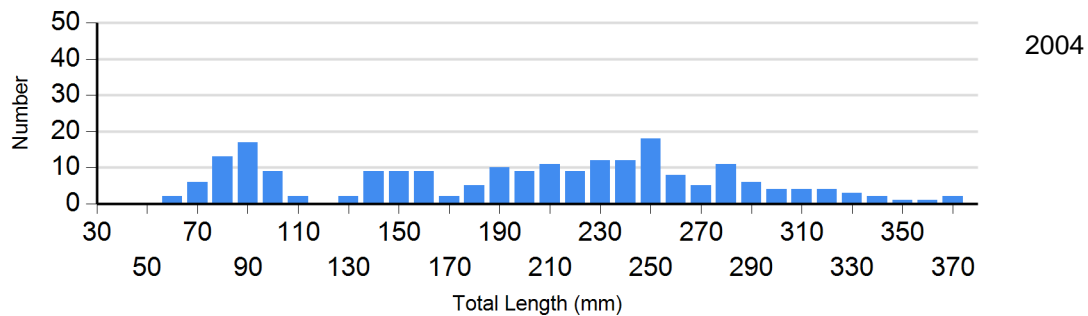
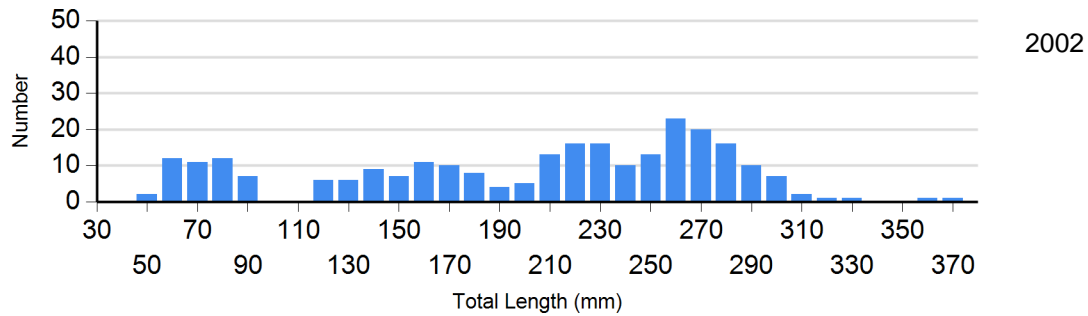
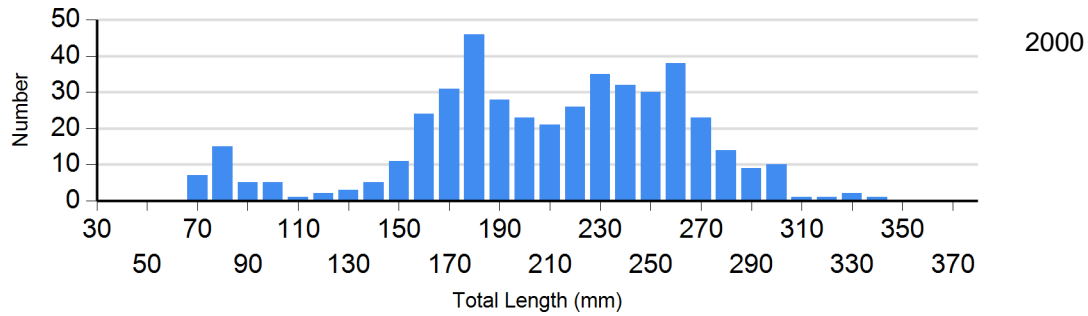
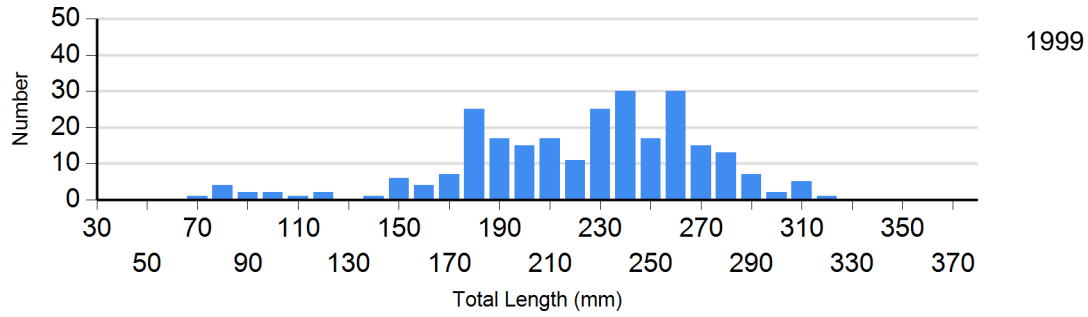
Site: 384
Species: Brook Trout



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Species: Brown Trout

