

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Castle Creek, Pennington County
02-0071-00
2002

Table 1. Population and Biomass Estimates for Castle Creek

Site Number: 373	Date Sampled: 09/23/2002	Conductivity (umhos/cm): 248
Site Midpoint (Latitude, Longitude): 44.05014956, -103.77144194	Site Length (m): 100	pH: 8.9
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 5.7	Water Temperature (C): 6.5
Stream Classification: BK3, 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	91	93	97	91	1642	22	930	665	19.70	1496	103.8	13.4
Brook Trout	>=200mm	3	3	5	3	53	6	30	21	5.45	48	217.0	115.3
Brook Trout	All	94	97	102	94	1713	29	970	694	25.52	1561	107.4	16.7
Brown Trout	<200mm	66	69	74	66	1218	20	690	493	17.57	1110	103.6	16.2
Brown Trout	>=200mm	29	29	31	29	512	83	290	207	73.92	467	247.5	161.7
Brown Trout	All	95	98	103	95	1730	105	980	701	93.59	1577	147.5	60.6

Site Number: 379	Date Sampled: 09/18/2002	Conductivity (umhos/cm): 271
Site Midpoint (Latitude, Longitude): 44.04695810, -103.77288355	Site Length (m): 100	pH: 8.6
Survey Completed by: Chadwick Ecological Services	Mean Width (m): 4.4	Water Temperature (C): 7.5
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	70	102	146	70	2334	25	1020	945	22.47	1641	93.2	10.8
Brook Trout	>=200mm	5	5	5	5	114	15	50	46	13.49	80	227.4	132.0
Brook Trout	All	75	99	130	75	2265	43	990	918	38.38	1593	102.2	19.0

Brown Trout	<200mm	84	93	105	84	2128	37	930	862	33.12	1496	104.3	17.4
Brown Trout	>=200mm	19	20	24	19	458	89	200	185	79.15	322	252.9	193.7
Brown Trout	All	103	114	127	103	2609	130	1140	1057	116.33	1834	131.7	49.9

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: 09/17/2002 **Conductivity (umhos/cm):** 290
Site Length (m): 100
Mean Width (m): 4.4 **pH:** 8.8
Number of Pass: 3 **Water Temperature (C):** 13.0
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	59	70	86	59	1581	27	700	640	23.95	1126	108.0	17.0
Brook Trout	>=200mm	6	6	6	6	136	15	60	55	13.53	97	220.2	111.8
Brook Trout	All	65	74	87	65	1671	43	740	677	38.39	1191	118.4	25.7
Brown Trout	<200mm	60	60	62	60	1355	31	600	549	28.03	965	118.3	23.2
Brown Trout	>=200mm	56	56	58	56	1265	283	560	512	253.10	901	271.2	224.1
Brown Trout	All	116	117	120	116	2643	318	1170	1070	283.56	1883	192.1	120.2

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: 09/17/2002 **Conductivity (umhos/cm):** 280
Site Length (m): 114
Mean Width (m): 6.7 **pH:** 8.2
Number of Pass: 3 **Water Temperature (C):** 10.0
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	105	114	125	105	1712	48	1000	693	42.46	1609	125.0	27.8
Brook Trout	>=200mm	155	155	156	155	2327	456	1360	943	406.90	2188	258.6	195.8
Brook Trout	All	260	264	269	260	3964	509	2316	1605	454.23	3726	204.6	128.3

Brown Trout	<200mm	18	18	19	18	270	7	158	109	6.49	254	121.2	26.9
Brown Trout	>=200mm	16	16	17	16	240	56	140	97	49.79	226	278.8	232.1
Brown Trout	All	34	34	35	34	511	63	298	207	56.28	480	195.4	123.5

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, 1992-2002

Site 373

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 23, 2002	93	91-97	
Brook Trout >=200mm	Sep 23, 2002	3	3-5	BK3
Brown Trout <200mm	Sep 23, 2002	69	66-74	
Brown Trout >=200mm	Sep 23, 2002	29	29-31	BR1

Site 379

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 18, 2002	102	70-146	
Brook Trout >=200mm	Sep 18, 2002	5	5-5	BK2

Brown Trout <200mm	Sep 18, 2002	93	84-105	
Brown Trout >=200mm	Sep 18, 2002	20	19-24	BR1

Site 384

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 14, 1992	127	109-146	
	Oct 12, 1993	87	84-92	
	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	
Brook Trout >=200mm	Oct 14, 1992	11	11-12	BK2
	Oct 12, 1993	21	21-21	BK1

Brook Trout >=200mm	Nov 07, 1994	12	12-13	BK2
	Sep 05, 1995	30	30-31	BK1
	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
Brown Trout <200mm	Oct 14, 1992	13	13-14	
	Oct 12, 1993	38	37-41	
	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	

Brown Trout <200mm	Sep 25, 2000	43	43-45	
	Sep 17, 2002	60	60-62	
Brown Trout >=200mm	Oct 14, 1992	34	32-39	BR1
	Oct 12, 1993	29	29-30	BR1
	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

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	

Brook Trout <200mm	Sep 22, 1998	142	90-209	
	Sep 27, 1999	72	72-74	
	Sep 27, 2000	199	185-213	
	Sep 17, 2002	114	105-125	
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
Brown Trout <200mm	Sep 22, 1998	1	1-1	
	Sep 17, 2002	18	18-19	
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

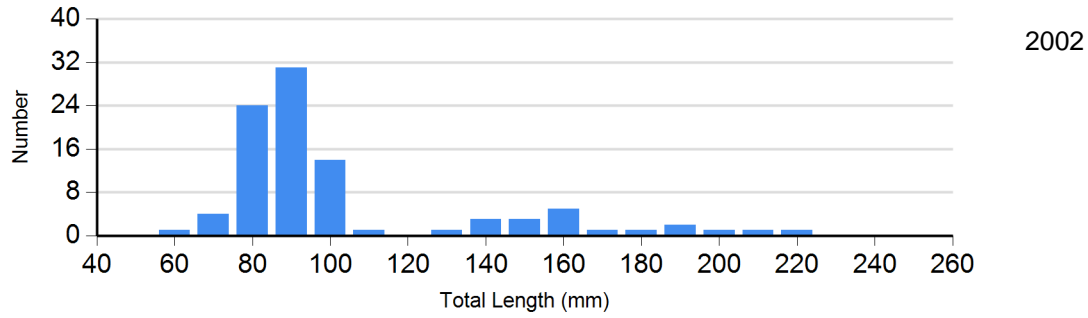
16-17

BR2

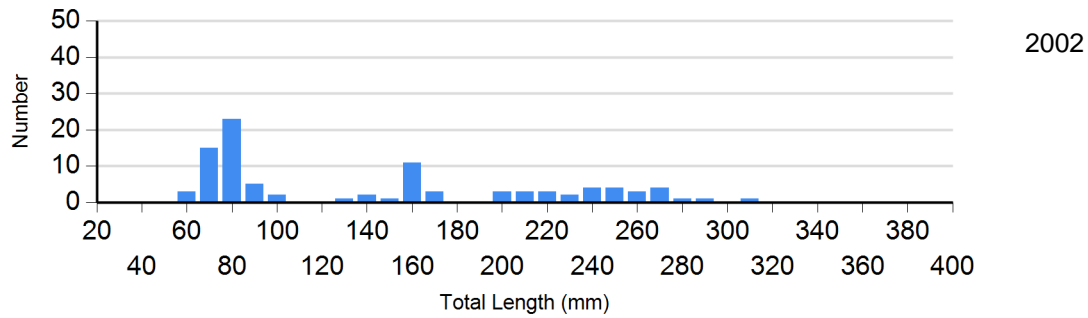
Length Frequency Distribution

Length frequency histogram of species sampled by year.

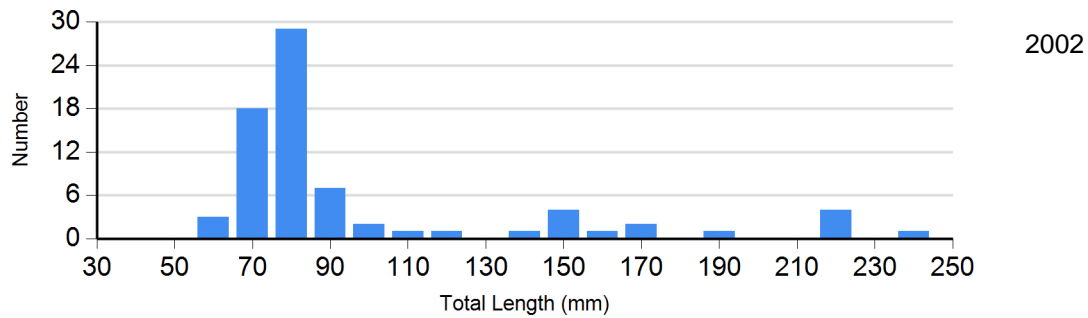
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Species: Brook Trout



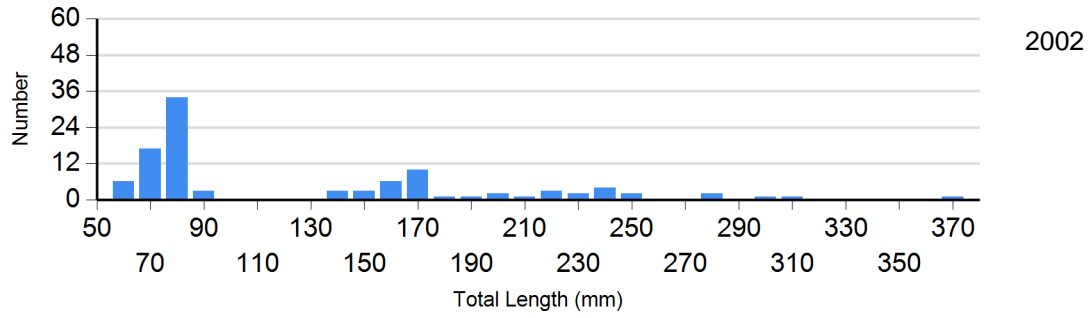
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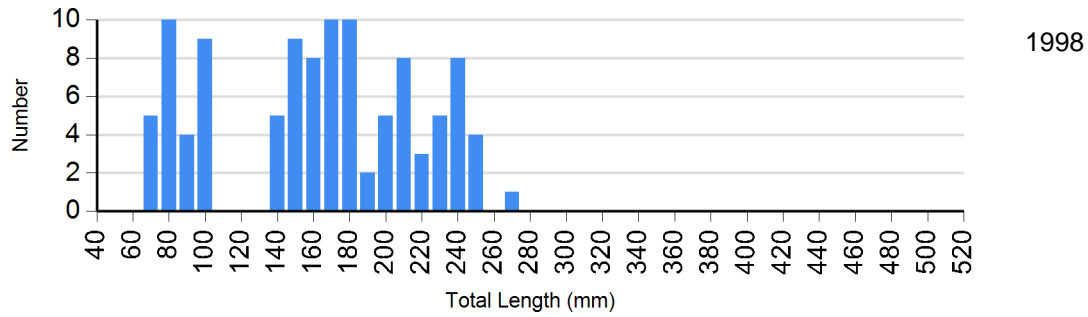
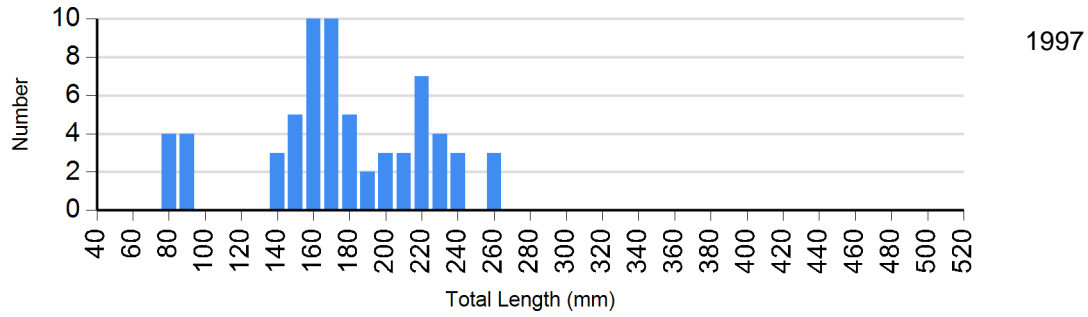
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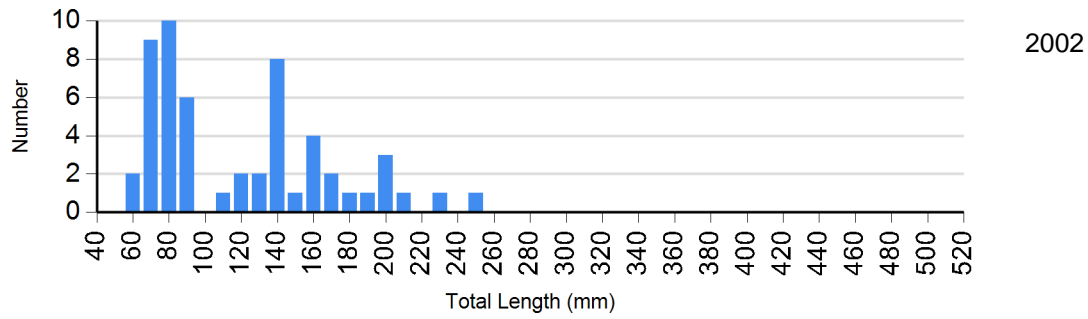
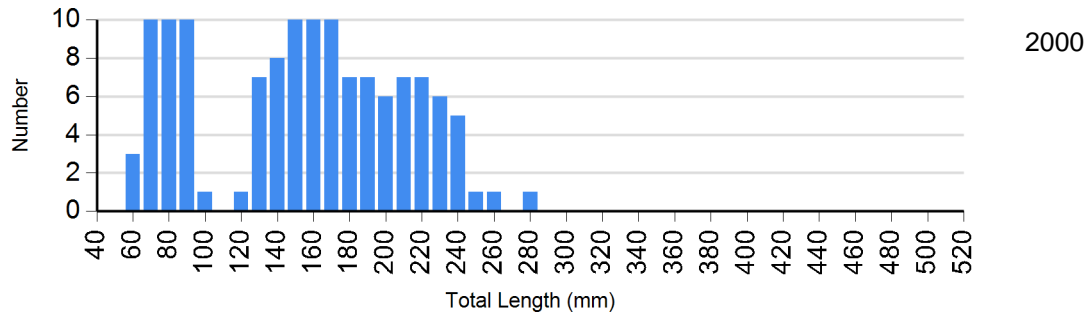
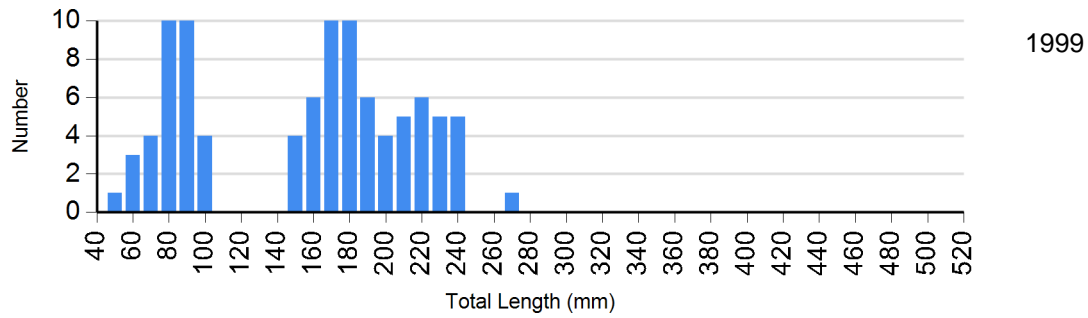


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Species: Brown Trout

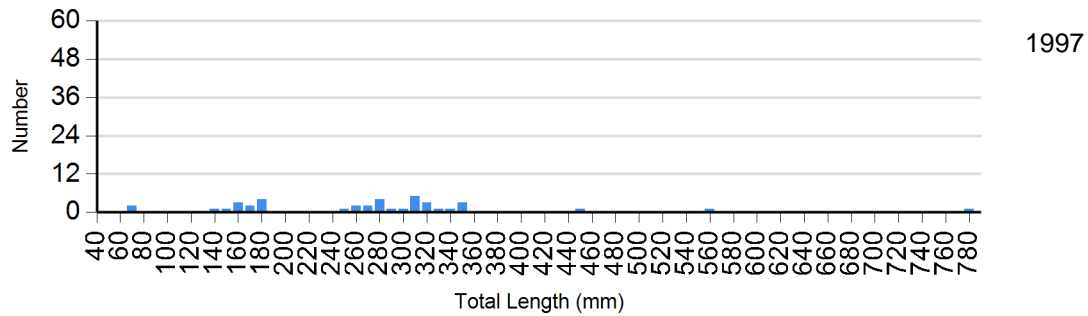


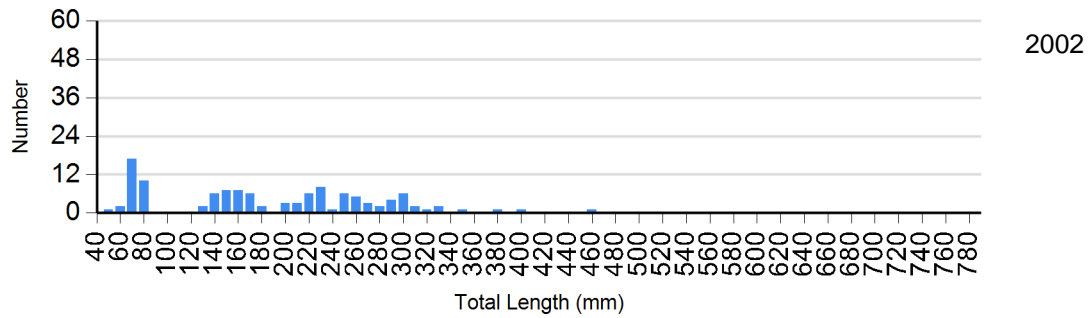
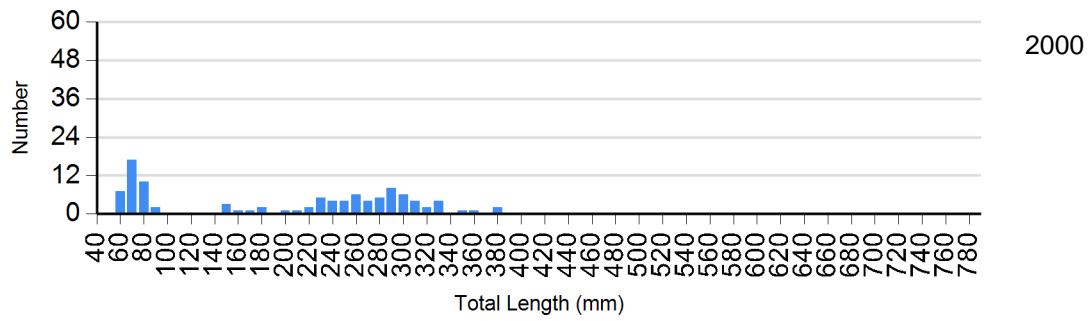
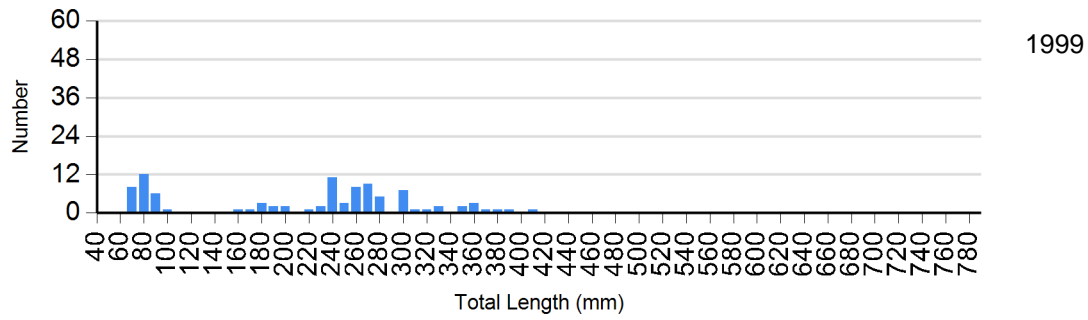
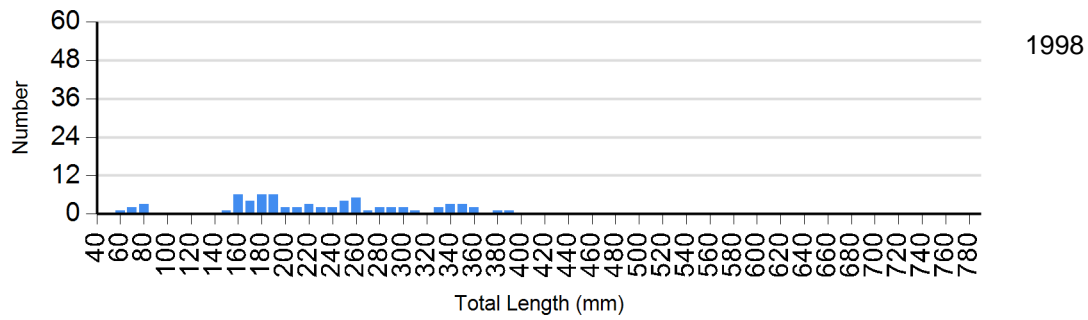
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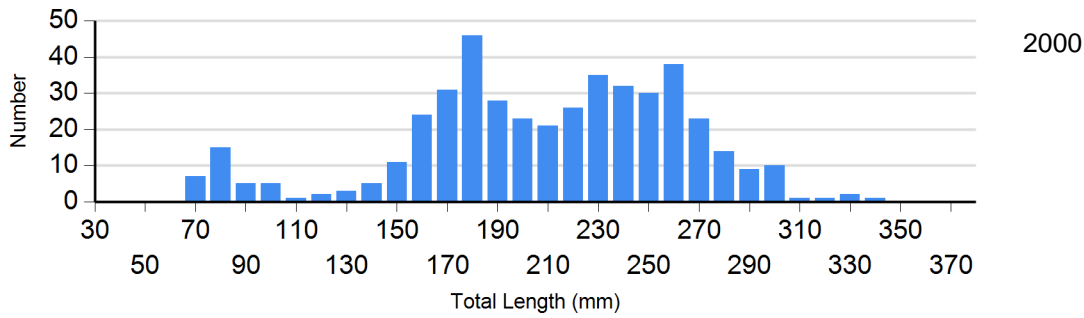
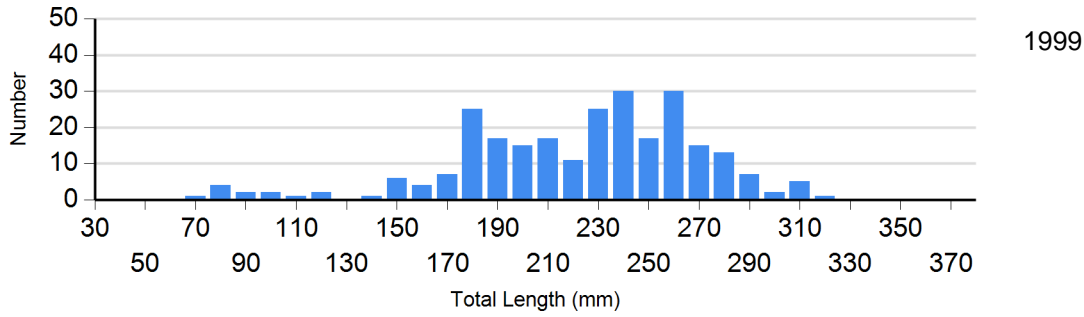
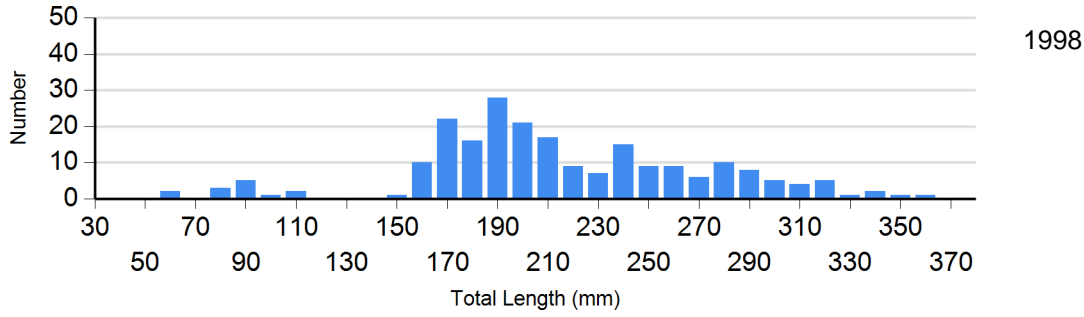
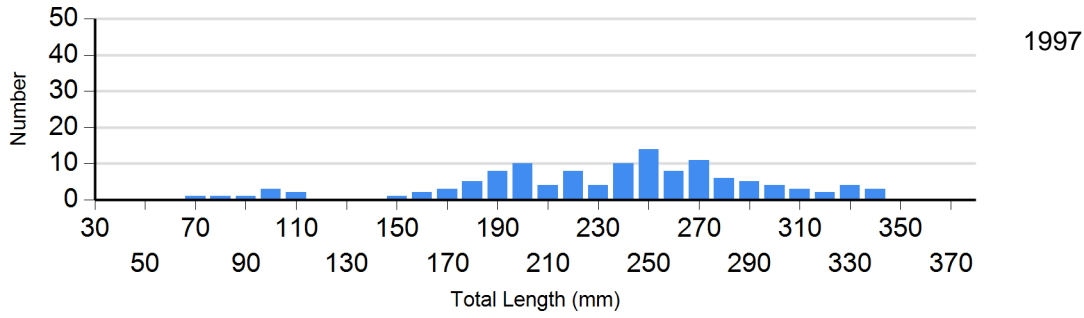


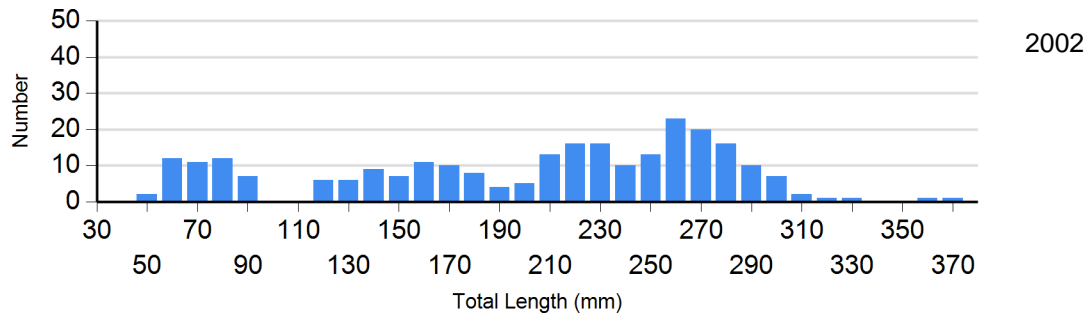
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Site: 417
Species: Brook Trout





Site: 417
Species: Brown Trout

