

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Spearfish Creek, Lawrence County
09-0021-00
2000

Table 1. Population and Biomass Estimates for Spearfish Creek

Site Number: 25	Date Sampled: 09/29/2000	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.58977763, -103.88641571	Site Length (m): 89	pH:
Survey Completed by: Chadwick Ecological Services	Mean Width (m): 10.4	Water Temperature (C):
Stream Classification: BR2	Number of Pass: 3	Voltage: 250

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 Stickleback	All	1	1	1	1	10	0	11	4	0.01	18	42.0	0.7
Brown Trout	<200mm	303	323	337	309	3121	42	3629	1264	37.46	5839	104.4	13.4
Brown Trout	>=200mm	22	22	23	22	213	40	247	86	35.72	398	257.6	188.2
Brown Trout	All	325	345	359	331	3333	84	3876	1350	75.22	6237	114.7	25.3
Longnose Dace	All	1	1	1	1	10	0	11	4	0.00	18	38.0	0.4
White Sucker	All	12	12	12	12	116	0	135	47	0.23	217	58.8	2.2

Site Number: 334	Date Sampled: 10/23/2000	Conductivity (umhos/cm): 290
Site Midpoint (Latitude, Longitude): 44.40606069, -103.89803263	Site Length (m): 100	pH: 8.9
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 8.4	Water Temperature (C): 8.0
Stream Classification: BK0, BR1, RB1	Number of Pass: 3	Voltage: 200

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	4	2	24	0	20	10	0.12	32	86.5	5.5
Brook Trout	All	2	2	4	2	24	0	20	10	0.12	32	86.5	5.5

Brown Trout	<200mm	167	178	189	167	2114	71	1780	856	63.31	2864	140.6	33.5
Brown Trout	>=200mm	69	78	90	69	927	146	780	375	130.05	1255	245.4	157.2
Brown Trout	All	236	256	271	241	3041	212	2560	1232	189.23	4119	171.3	69.7
Rainbow Trout	<200mm	67	69	74	67	820	11	690	332	9.51	1110	95.9	13.0
Rainbow Trout	>=200mm	35	36	39	35	428	120	360	173	106.72	579	296.6	279.5
Rainbow Trout	All	102	106	112	102	1259	132	1060	510	117.42	1706	164.7	104.4

Site Number: 340

Site Midpoint (Latitude, Longitude): 44.40182261, -103.89476328

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1, RB1

Date Sampled: 10/23/2000

Site Length (m): 100

Mean Width (m): 9.6

Number of Pass: 3

Conductivity (umhos/cm): 228

pH: 8.9

Water Temperature (C): 6.0

Voltage: 200

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	138	162	184	140	1689	56	1620	684	49.56	2607	140.5	32.9
Brown Trout	>=200mm	105	114	125	105	1189	181	1140	481	162.05	1834	245.6	152.7
Brown Trout	All	243	276	299	253	2878	244	2760	1165	217.48	4441	185.9	84.6
Rainbow Trout	<200mm	35	37	42	35	386	9	370	156	7.97	595	113.7	23.1
Rainbow Trout	>=200mm	40	46	57	40	480	99	460	194	87.96	740	269.1	205.4
Rainbow Trout	All	75	83	94	75	865	104	830	350	92.99	1335	196.6	120.3

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 Spearfish Creek, 1990-2000

Site 25

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Stickleback	Sep 29, 2000	1	1-1	
Brown Trout <200mm	Sep 27, 1991	181	175-188	
	Sep 29, 2000	323	309-337	
Brown Trout >=200mm	Sep 27, 1991	72	72-74	BR3
	Sep 29, 2000	22	22-23	BR2
Longnose Dace	Sep 29, 2000	1	1-1	
White Sucker	Sep 29, 2000	12	12-12	

Site 334

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 30, 1992	1	1-1	
	Oct 06, 1993	1	1-1	
	Oct 12, 1994	6	6-9	
	Oct 17, 1995	3	3-5	
	Oct 08, 1996	4	4-6	
	Oct 23, 2000	2	2-4	
Brook Trout >=200mm	Oct 06, 1993	1	1-2	BK3
	Oct 17, 1995	1	1-1	BK3
Brown Trout <200mm	Sep 25, 1991	135	79-224	
	Sep 30, 1992	74	60-94	
	Oct 06, 1993	64	61-69	
	Oct 12, 1994	96	89-105	
	Oct 17, 1995	26	24-32	
	Oct 08, 1996	462	109-1501	
	Oct 23, 2000	178	167-189	

Brown Trout >=200mm	Sep 25, 1991	123	116-132	BR3
	Sep 30, 1992	111	104-120	BR1
	Oct 06, 1993	94	92-98	BR1
	Oct 12, 1994	85	81-91	BR1
	Oct 17, 1995	36	33-43	BR1
	Oct 08, 1996	24	24-24	BR2
	Oct 23, 2000	78	69-90	BR1
Rainbow Trout <200mm	Sep 25, 1991	24	19-38	
	Sep 30, 1992	23	18-37	
	Oct 06, 1993	25	25-27	
	Oct 12, 1994	78	66-94	
	Oct 17, 1995	16	16-18	
	Oct 08, 1996	93	60-145	
	Oct 23, 2000	69	67-74	
Rainbow Trout >=200mm	Sep 25, 1991	60	47-83	RB2
	Sep 30, 1992	44	43-48	RB1

Rainbow Trout >=200mm	Oct 06, 1993	55	54-59	RB1
	Oct 12, 1994	56	56-58	RB1
	Oct 17, 1995	15	15-17	RB1
	Oct 08, 1996	19	19-19	RB1
	Oct 23, 2000	36	35-39	RB1

Site 340

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 02, 1992	10	10-12	
	Oct 07, 1993	6	6-8	
	Oct 12, 1994	7	7-9	
	Oct 17, 1995	3	3-5	
	Oct 08, 1996	5	5-7	
Brook Trout >=200mm	Oct 02, 1992	6	6-9	BK2
	Oct 07, 1993	3	3-4	BK3
	Oct 17, 1995	1	1-2	BK3
	Oct 08, 1996	2	2-3	BK3

Brown Trout <200mm	Sep 26, 1991	67	66-70	
	Oct 02, 1992	84	66-108	
	Oct 07, 1993	77	47-133	
	Oct 12, 1994	49	44-58	
	Oct 17, 1995	30	29-34	
	Oct 08, 1996	165	130-200	
	Oct 25, 1999	116	76-171	
	Oct 23, 2000	162	140-184	
Brown Trout >=200mm	Sep 26, 1991	23	21-29	BR3
	Oct 02, 1992	67	67-69	BR1
	Oct 07, 1993	73	73-74	BR1
	Oct 12, 1994	40	39-43	BR1
	Oct 17, 1995	51	51-52	BR1
	Oct 08, 1996	48	48-49	BR1
	Oct 25, 1999	98	85-113	BR1
	Oct 23, 2000	114	105-125	BR1

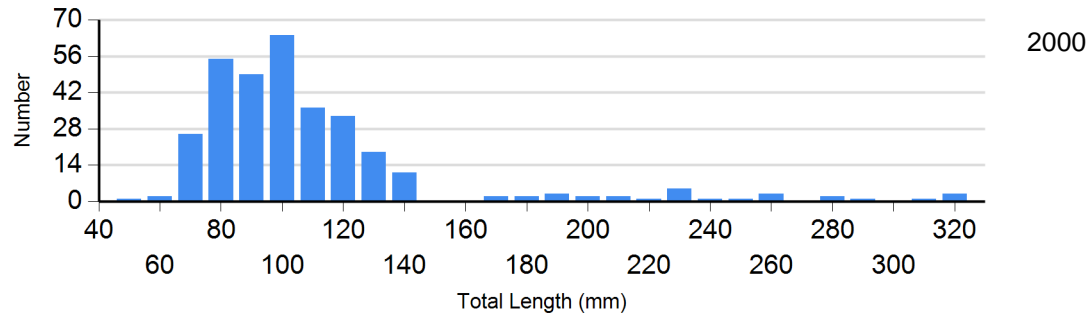
Rainbow Trout <200mm	Sep 26, 1991	75	39-166	
	Oct 02, 1992	135	104-168	
	Oct 07, 1993	52	50-56	
	Oct 12, 1994	137	88-200	
	Oct 17, 1995	33	34-41	
	Oct 08, 1996	27	25-33	
	Oct 25, 1999	22	15-44	
	Oct 23, 2000	37	35-42	
Rainbow Trout >=200mm	Sep 26, 1991	26	23-34	RB2
	Oct 02, 1992	43	41-48	RB1
	Oct 07, 1993	48	48-49	RB1
	Oct 12, 1994	38	37-42	RB1
	Oct 17, 1995	27	27-29	RB1
	Oct 08, 1996	34	31-41	RB1
	Oct 25, 1999	39	37-44	RB1
	Oct 23, 2000	46	40-57	RB1

Length Frequency Distribution

Length frequency histogram of species sampled by year.

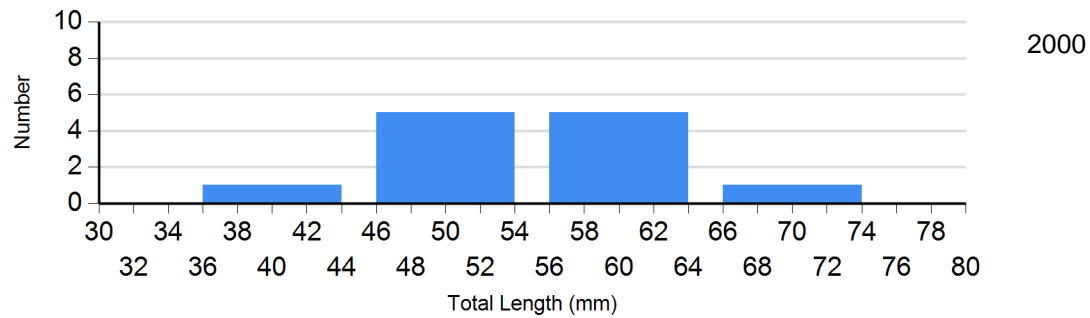
Site: 25

Species: Brown Trout



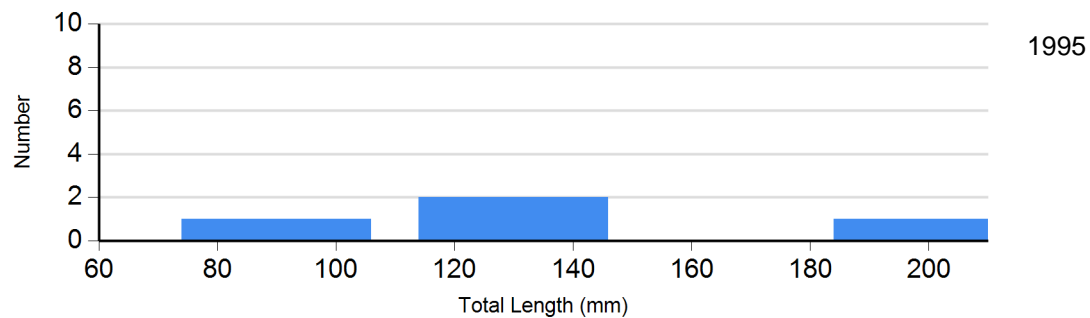
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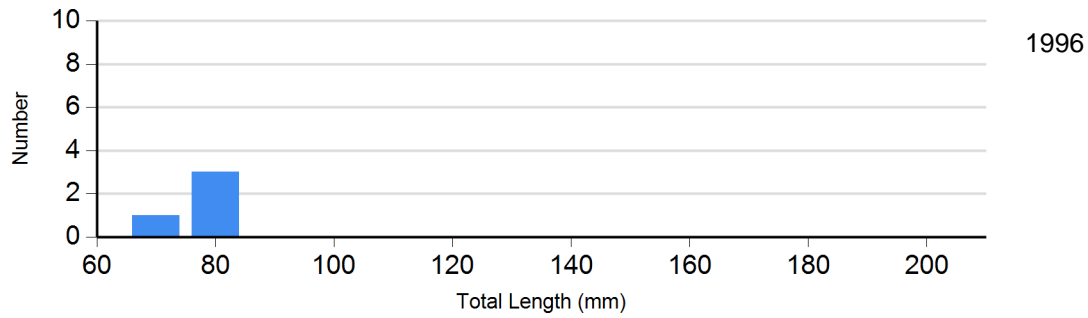
Species: White Sucker



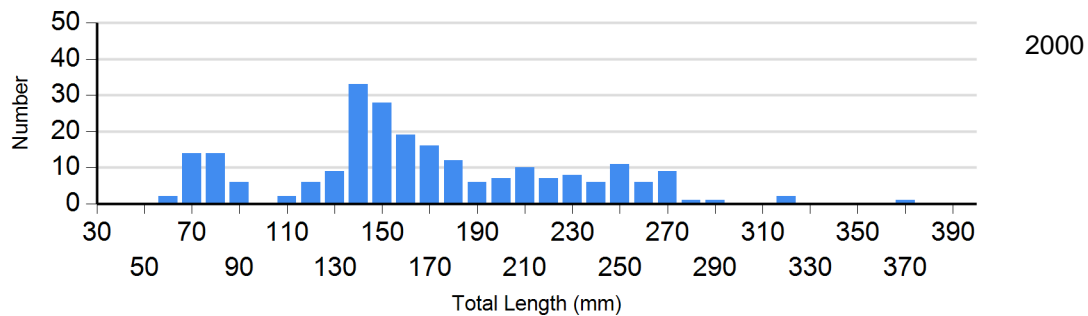
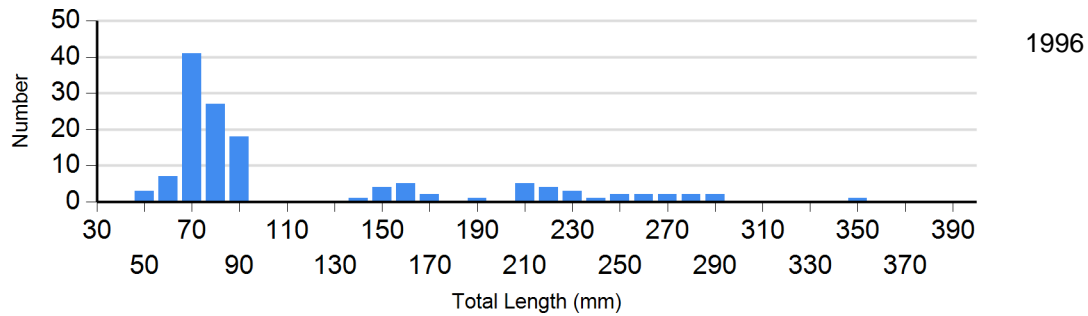
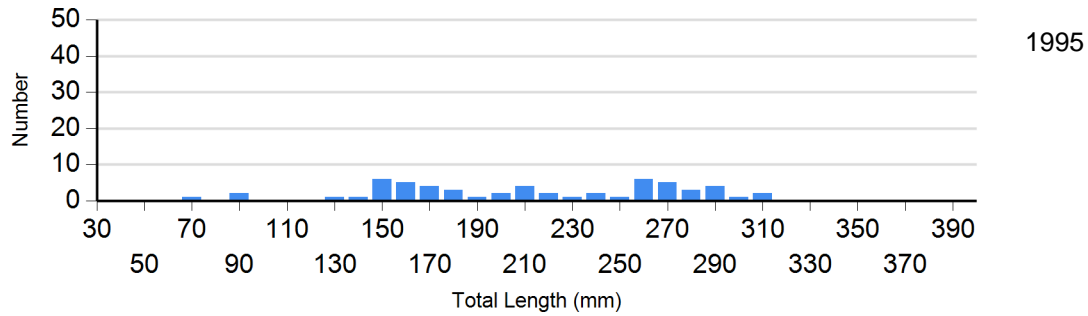
Site: 334

Species: Brook Trout

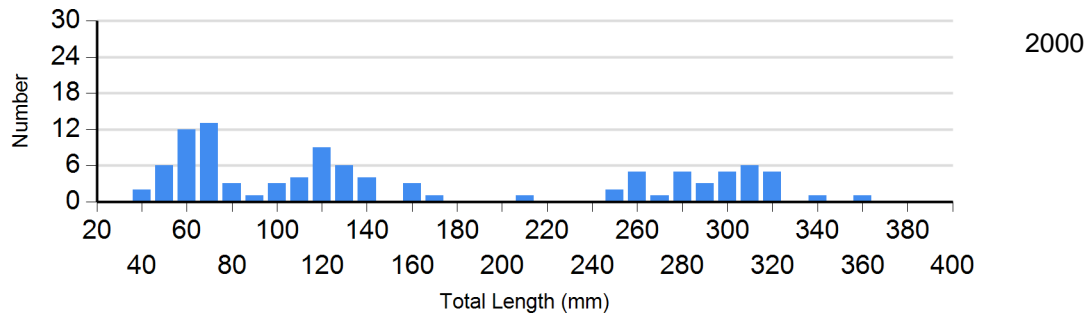
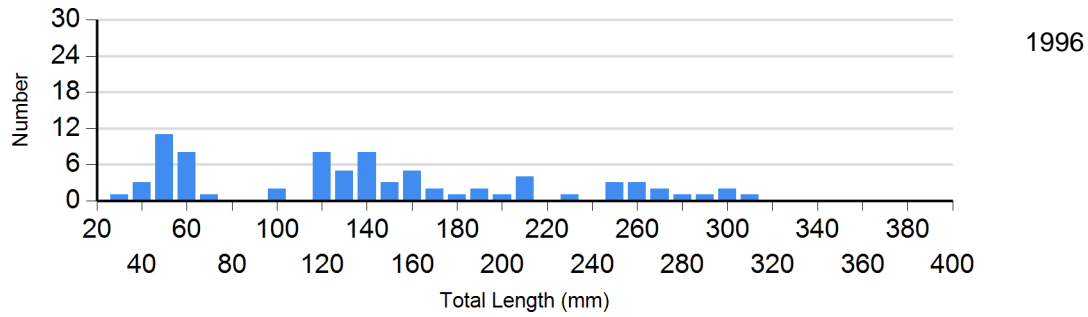
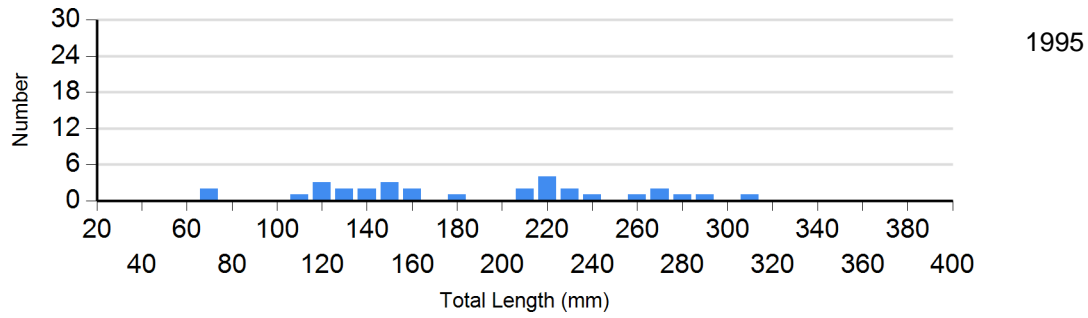




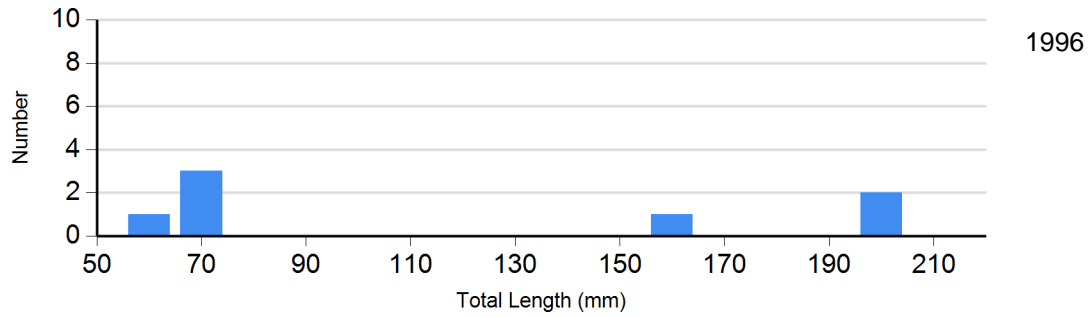
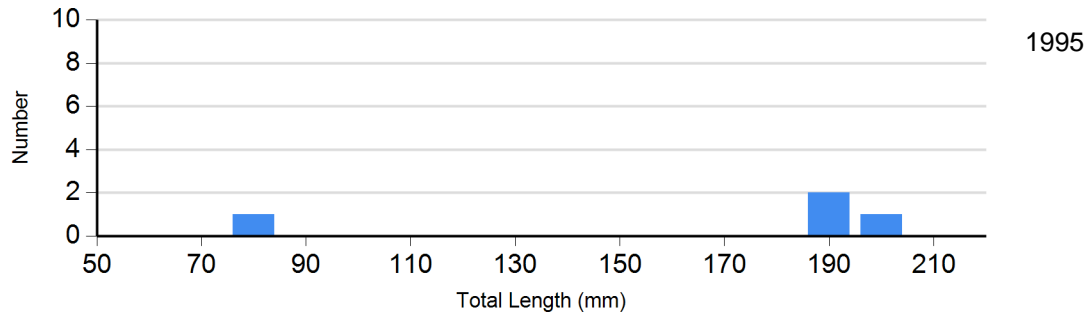
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Species: Brown Trout



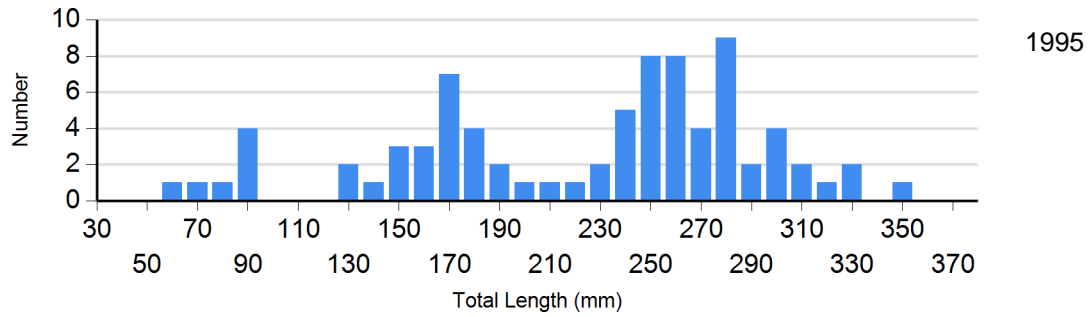
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Species: Rainbow Trout

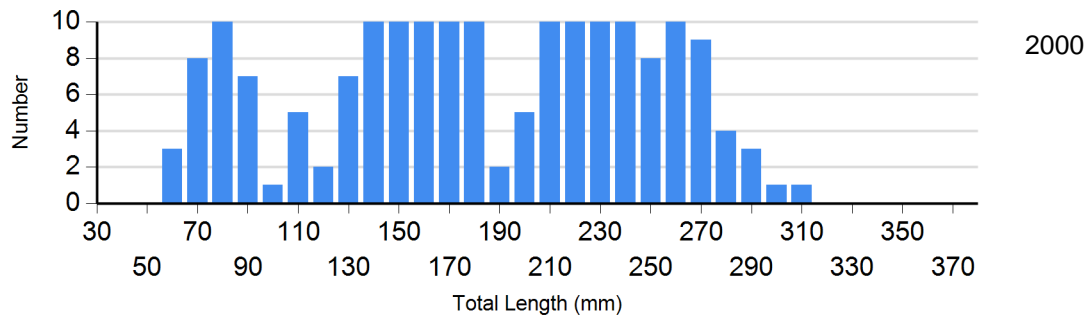
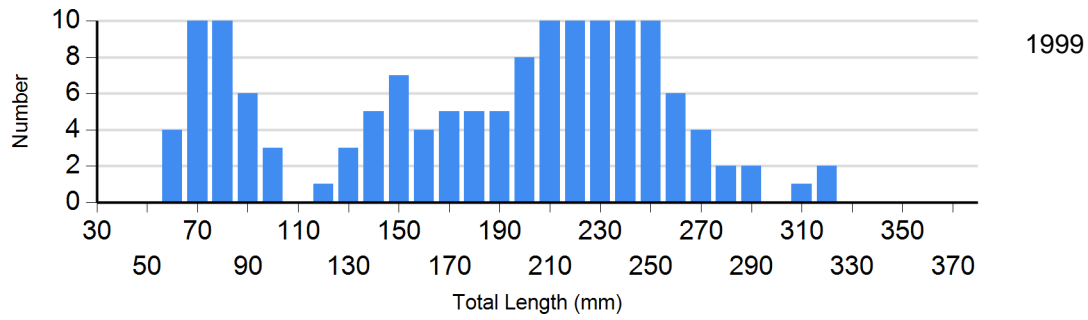
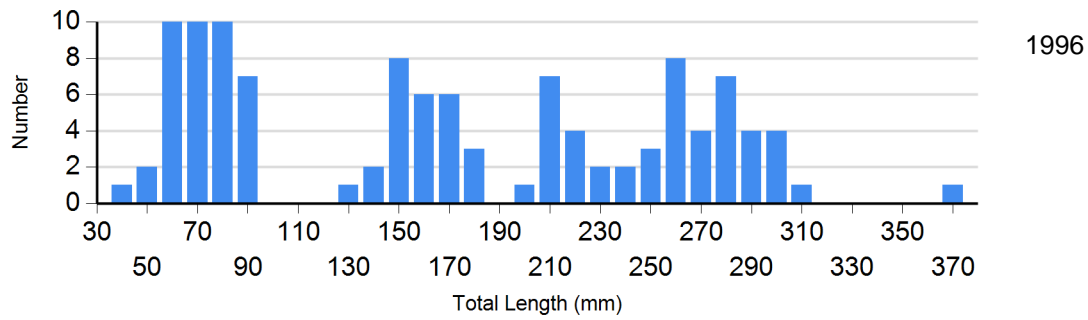


Site: 340
Species: Brook Trout



Site: 340
Species: Brown Trout





Site: 340
Species: Rainbow Trout

