

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Castle Creek - South Fork, Pennington County
02-0073-00
2017

Table 1. Population and Biomass Estimates for Castle Creek - South Fork

Site Number: 2	Date Sampled: 06/20/2017	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.01176175, -103.83136031	Site Length (m): 100	pH:
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 3.8	Water Temperature (C): 12.0
Stream Classification: BK2, RB2	Number of Pass: 3	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	165	166	169	165	4358	105	1660	1765	93.77	2671	116.5	24.1
Brook Trout	>=200mm	9	9	10	9	236	25	90	96	22.34	145	214.9	105.9
Brook Trout	All	174	175	178	174	4594	137	1750	1861	121.90	2816	121.6	29.7
Rainbow Trout	<200mm	55	55	57	55	1444	38	550	585	34.13	885	101.4	26.5
Rainbow Trout	>=200mm	1	1	1	1	26	2	10	11	2.23	16	207.0	95.0
Rainbow Trout	All	56	56	58	56	1470	44	560	595	39.25	901	103.3	29.9

Site Number: 8	Date Sampled: 06/20/2017	Conductivity (umhos/cm):
Site Midpoint (Latitude, Longitude): 44.00675416, -103.83180460	Site Length (m): 100	pH:
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 3.5	Water Temperature (C):
Stream Classification: BK2, RB2	Number of Pass: 3	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	55	62	73	55	1776	40	620	719	36.16	998	117.3	22.8
Brook Trout	>=200mm	5	5	6	5	143	16	50	58	14.20	80	223.4	111.0
Brook Trout	All	60	67	77	60	1919	61	670	777	54.19	1078	126.1	31.6

Rainbow Trout	<200mm	19	42	130	19	1203	33	420	487	29.36	676	107.4	27.3
Rainbow Trout	>=200mm	1	1	1	1	29	4	10	12	3.15	16	237.0	123.0
Rainbow Trout	All	20	36	86	20	1031	38	360	418	33.98	579	113.9	36.9

Site Number: 11

Site Midpoint (Latitude, Longitude): 44.00416081, -103.83150513

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2, RB0

Date Sampled: 06/20/2017

Site Length (m): 100

Mean Width (m): 3.9

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C): 14.0

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	72	73	76	72	1859	49	730	753	43.91	1175	122.8	26.5
Brook Trout	>=200mm	12	12	12	12	306	34	120	124	29.96	193	220.3	109.8
Brook Trout	All	84	85	88	84	2164	89	850	877	79.15	1368	136.8	41.0
Rainbow Trout	<200mm	29	31	36	29	789	21	310	320	18.53	499	106.3	26.3
Rainbow Trout	All	29	31	36	29	789	21	310	320	18.53	499	106.3	26.3

Site Number: 21

Site Midpoint (Latitude, Longitude): 43.99808186, -103.83371127

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK3, RB2

Date Sampled: 06/05/2017

Site Length (m): 100

Mean Width (m): 3.8

Number of Pass: 2

Conductivity (umhos/cm):

pH:

Water Temperature (C): 14.0

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	134	141	129	3526	101	1340	1428	90.51	2156	110.3	28.7
Brook Trout	>=200mm	1	1	1	1	26	3	10	11	2.82	16	219.0	120.0
Brook Trout	All	130	135	142	130	3553	107	1350	1439	95.44	2172	111.2	30.1
Rainbow Trout	<200mm	16	16	17	16	421	10	160	171	8.71	257	95.1	23.2

Rainbow Trout	>=200mm	2	2	2	2	53	9	20	21	7.66	32	273.0	163.0
Rainbow Trout	All	18	18	19	18	474	28	180	192	24.58	290	114.9	58.1

Site Number: 32

Site Midpoint (Latitude, Longitude): 43.99031894, -103.83322827

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK3, RB2

Date Sampled: 06/05/2017

Site Length (m): 100

Mean Width (m): 0.0

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C): 14.0

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	107	109	113	107	0	0	1090	0	0.00	1754	110.0	27.2
Brook Trout	>=200mm	1	1	1	1	0	0	10	0	0.00	16	203.0	93.0
Brook Trout	All	108	110	114	108	0	0	1100	0	0.00	1770	110.9	28.4
Rainbow Trout	<200mm	25	25	26	25	0	0	250	0	0.00	402	109.3	26.4
Rainbow Trout	>=200mm	1	1	1	1	0	0	10	0	0.00	16	209.0	108.0
Rainbow Trout	All	26	26	27	26	0	0	260	0	0.00	418	113.2	32.2

Site Number: 37

Site Midpoint (Latitude, Longitude): 43.98627333, -103.83121032

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2, RB0

Date Sampled: 06/22/2017

Site Length (m): 100

Mean Width (m): 3.7

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C): 10.0

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	77	86	98	77	2342	54	860	948	47.92	1384	111.8	22.9
Brook Trout	>=200mm	4	4	4	4	109	11	40	44	9.43	64	209.5	97.0
Brook Trout	All	81	90	102	81	2450	70	900	992	62.38	1448	116.6	28.5
Rainbow Trout	<200mm	16	17	21	16	463	19	170	187	17.29	274	109.9	41.8

Rainbow Trout	All	16	17	21	16	463	19	170	187	17.29	274	109.9	41.8
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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 - South Fork, 2007-2017

Site 2

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	May 29, 2008	76	76-76	
	Jul 24, 2012	176	168-184	
	Jun 19, 2014	71	64-81	
	Jun 20, 2017	166	165-169	
Brook Trout >=200mm	May 29, 2008	11	11-11	BK2
	Jul 24, 2012	14	14-15	BK2
	Jun 19, 2014	10	10-11	BK2

Brook Trout >=200mm	Jun 20, 2017	9	9-10	BK2
Rainbow Trout <200mm	May 29, 2008	39	39-39	
	Jul 24, 2012	80	74-89	
	Jun 19, 2014	31	30-34	
	Jun 20, 2017	55	55-57	
Rainbow Trout >=200mm	May 29, 2008	22	22-22	RB1
	Jul 24, 2012	6	6-7	RB1
	Jun 19, 2014	8	8-8	RB1
	Jun 20, 2017	1	1-1	RB2

Site 8

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 20, 2017	62	55-73	
Brook Trout >=200mm	Jun 20, 2017	5	5-6	BK2
Rainbow Trout <200mm	Jun 20, 2017	42	19-130	
Rainbow Trout >=200mm	Jun 20, 2017	1	1-1	RB2

Site 11

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 20, 2017	73	72-76	
Brook Trout >=200mm	Jun 20, 2017	12	12-12	BK2
Rainbow Trout <200mm	Jun 20, 2017	31	29-36	

Site 21

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Sep 01, 2009	184	178-191	
	Jun 05, 2017	134	129-141	
Brook Trout >=200mm	Sep 01, 2009	32	32-34	BK1
	Jun 05, 2017	1	1-1	BK3
Rainbow Trout <200mm	Sep 01, 2009	12	11-17	
	Jun 05, 2017	16	16-17	
Rainbow Trout >=200mm	Jun 05, 2017	2	2-2	RB2

Site 32

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 05, 2017	109	107-113	
Brook Trout >=200mm	Jun 05, 2017	1	1-1	BK3

Rainbow Trout <200mm	Jun 05, 2017	25	25-26	
Rainbow Trout >=200mm	Jun 05, 2017	1	1-1	RB2

Site 37

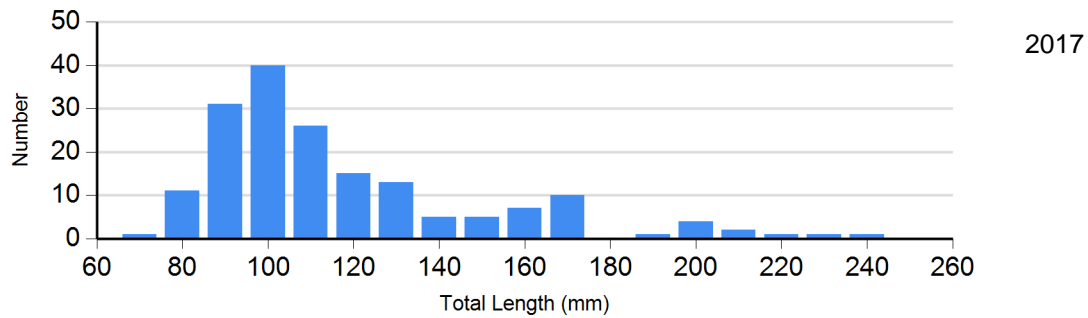
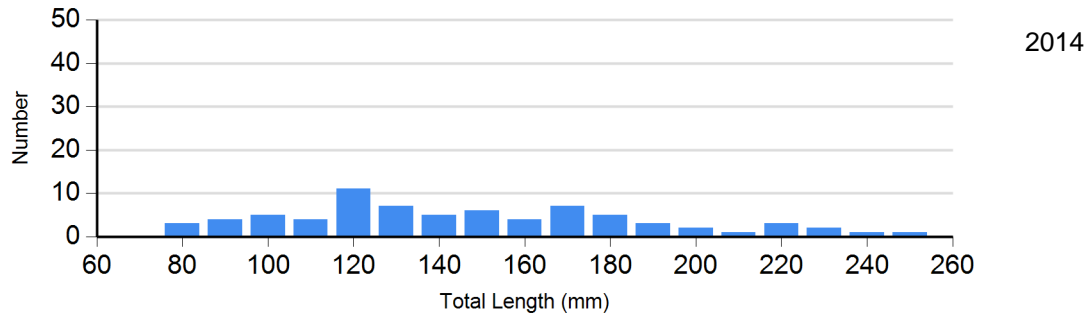
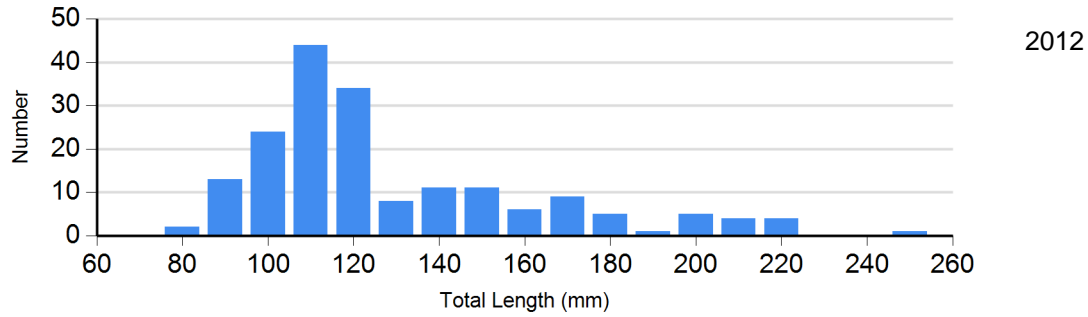
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 22, 2017	86	77-98	
Brook Trout >=200mm	Jun 22, 2017	4	4-4	BK2
Rainbow Trout <200mm	Jun 22, 2017	17	16-21	

Length Frequency Distribution

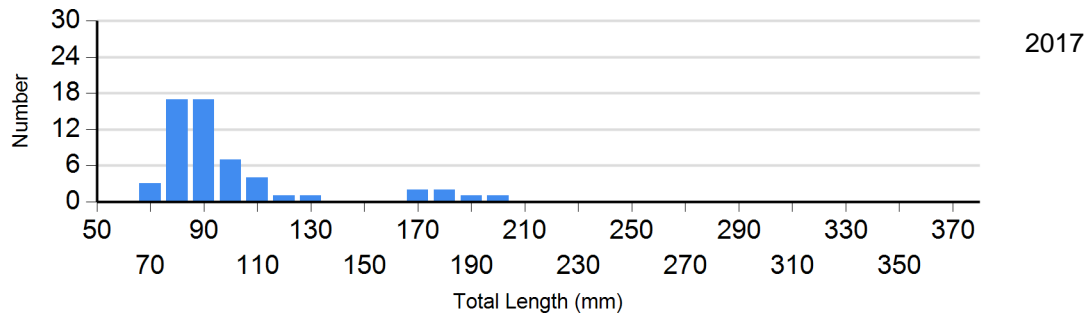
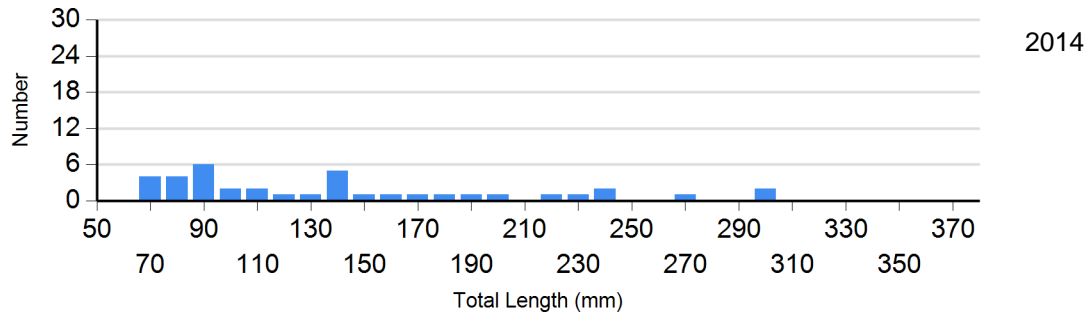
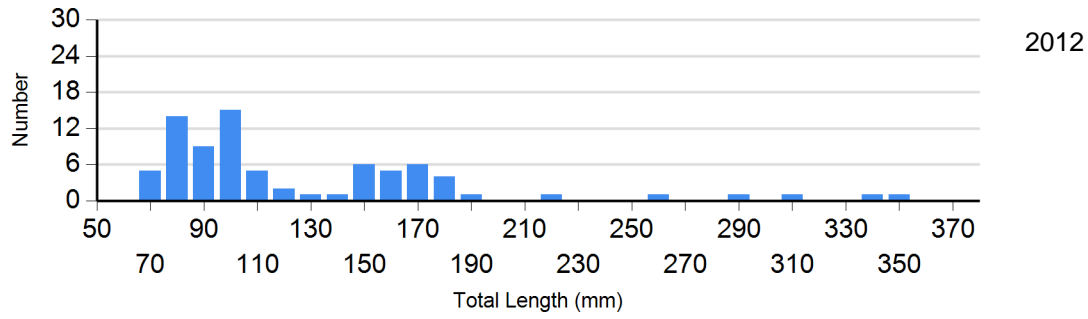
Length frequency histogram of species sampled by year.

Site: 2

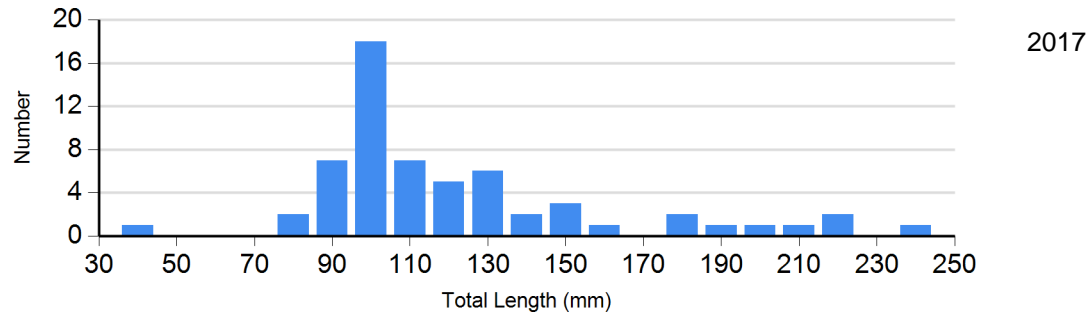
Species: Brook Trout



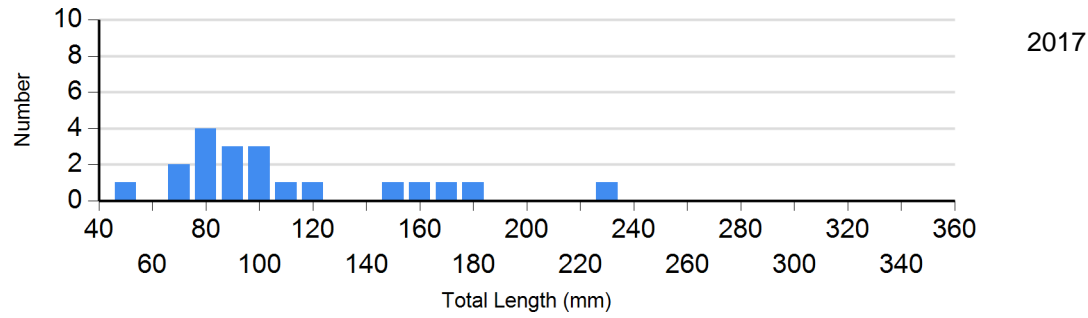
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Species: Rainbow Trout



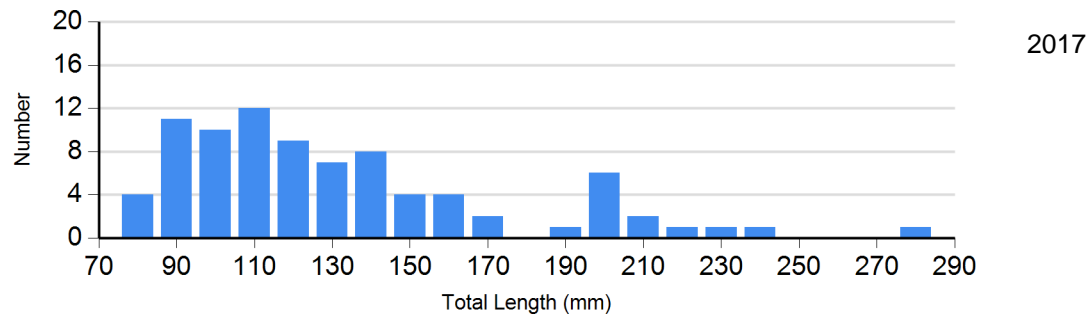
Site: 8
Species: Brook Trout



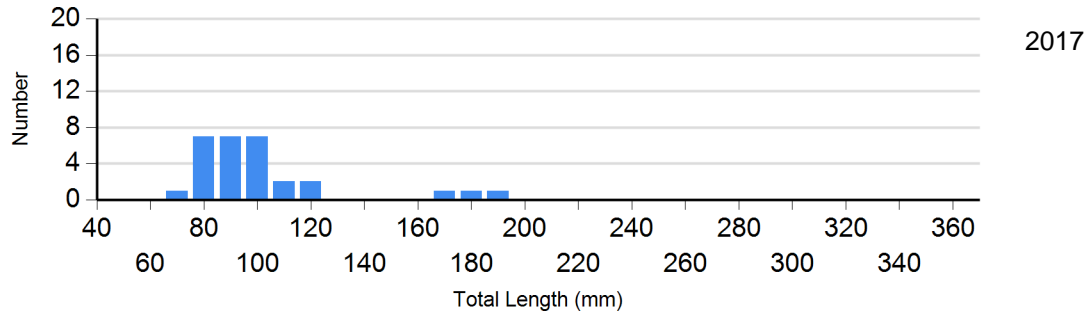
Site: 8
Species: Rainbow Trout



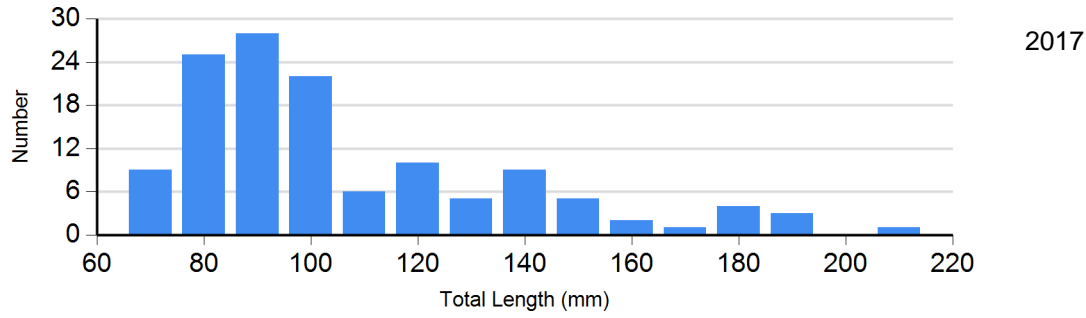
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Species: Brook Trout



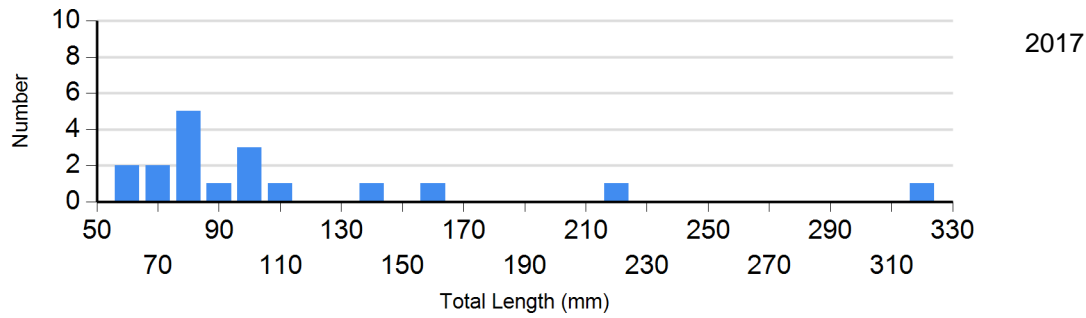
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Species: Rainbow Trout



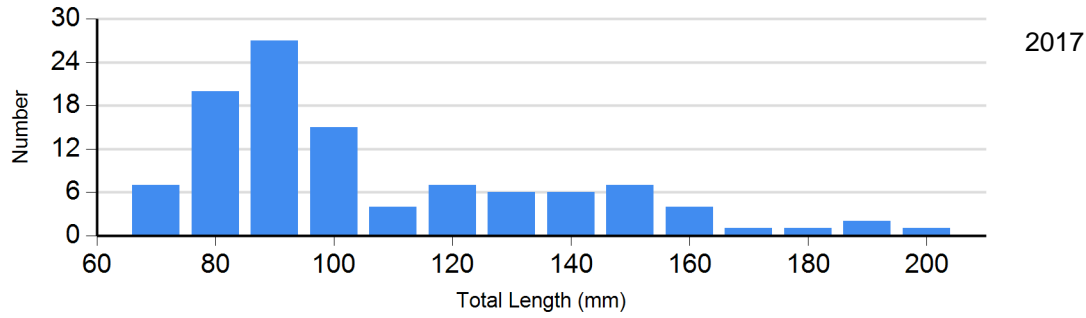
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Species: Brook Trout



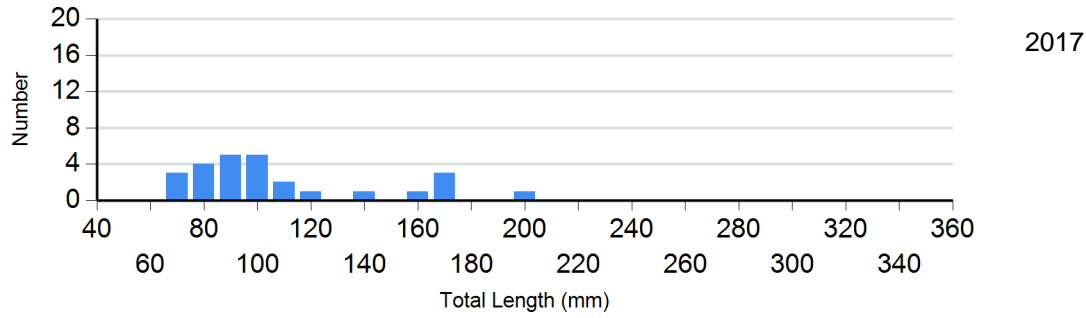
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Species: Rainbow Trout



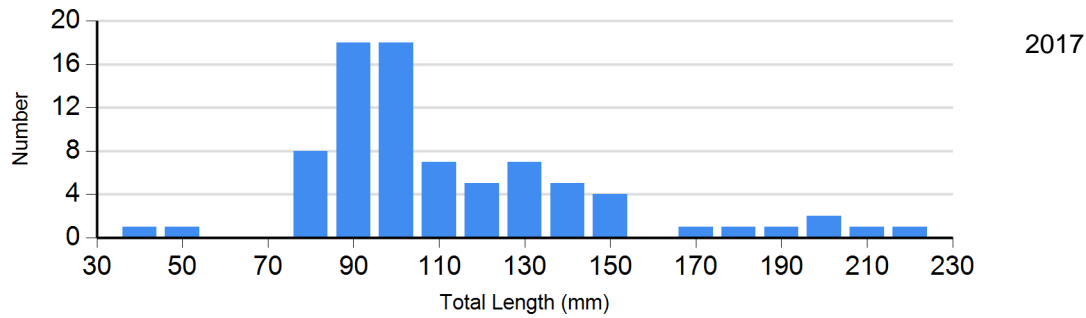
Site: 32
Species: Brook Trout



Site: 32
Species: Rainbow Trout



Site: 37
Species: Brook Trout



Site: 37
Species: Rainbow Trout

