

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Castle Creek, Pennington County
02-0071-00
2019

Table 1. Population and Biomass Estimates for Castle Creek

Site Number: 388	Date Sampled: 07/02/2019	Conductivity (umhos/cm): 370
Site Midpoint (Latitude, Longitude): 44.04338453, -103.77130517	Site Length (m): 100	pH: 8.8
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 5.7	Water Temperature (C): 10.1
Stream Classification: BK3, 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 Trout	<200mm	12	12	14	12	212	5	120	86	4.08	193	117.4	21.6
Brook Trout	>=200mm	2	2	3	2	35	3	20	14	3.10	32	203.5	98.5
Brook Trout	All	14	14	16	14	247	8	140	100	7.18	225	129.7	32.6
Brown Trout	<200mm	30	30	31	30	529	14	300	214	12.88	483	123.1	27.3
Brown Trout	>=200mm	8	8	10	8	141	26	80	57	23.41	129	240.3	185.9
Brown Trout	All	38	38	39	38	670	41	380	271	36.28	611	147.8	60.7

Site Number: 400	Date Sampled: 07/02/2019	Conductivity (umhos/cm): 369
Site Midpoint (Latitude, Longitude): 44.03806849, -103.77515673	Site Length (m): 100	pH: 8.7
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 8.4	Water Temperature (C): 0.0
Stream Classification: BK0, BR2	Number of Pass: 3	Voltage: 275

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	3	2	3	3	24	1	20	10	0.76	32	142.7	35.7
Brook Trout	All	3	2	3	3	24	1	20	10	0.76	32	142.7	35.7
Brown Trout	<200mm	8	13	38	8	155	3	130	63	2.74	209	113.5	19.8

Brown Trout	>=200mm	6	6	6	6	72	20	60	29	18.08	97	265.5	282.8
Brown Trout	All	14	14	16	14	167	22	140	68	19.76	225	178.6	132.5

Site Number: 402
Site Midpoint (Latitude, Longitude): 44.03681462, -103.77575885
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK3, BR1

Date Sampled: 07/02/2019
Site Length (m): 100
Mean Width (m): 6.5
Number of Pass: 3
Conductivity (umhos/cm): 366
pH: 8.7
Water Temperature (C): 10.1
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 Trout	<200mm	15	15	16	15	232	9	150	94	8.21	241	147.1	39.7
Brook Trout	>=200mm	3	3	4	3	46	6	30	19	5.24	48	224.3	126.7
Brook Trout	All	18	18	19	18	278	15	180	113	13.45	290	159.9	54.2
Brown Trout	<200mm	21	21	23	21	324	11	210	131	9.68	338	134.7	33.4
Brown Trout	>=200mm	34	34	35	34	525	134	340	213	119.53	547	273.2	254.9
Brown Trout	All	55	55	56	55	850	145	550	344	129.21	885	220.3	170.3

Site Number: 411
Site Midpoint (Latitude, Longitude): 44.03210666, -103.77970750
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK2, BR2

Date Sampled: 07/03/2019
Site Length (m): 100
Mean Width (m): 7.3
Number of Pass: 4
Conductivity (umhos/cm): 366
pH: 8.7
Water Temperature (C): 11.4
Voltage: 0

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	11	30	145	11	412	19	300	167	17.16	483	154.4	46.6
Brook Trout	>=200mm	12	13	18	12	179	30	130	72	26.63	209	237.6	167.1
Brook Trout	All	23	38	78	23	522	57	380	211	51.01	611	197.8	109.5
Brown Trout	<200mm	15	23	49	15	316	14	230	128	12.56	370	150.3	44.5

Brown Trout	>=200mm	11	14	25	11	192	83	140	78	73.74	225	316.4	429.5
Brown Trout	All	26	44	90	26	604	125	440	245	111.91	708	220.6	207.4

Site Number: 412
Site Midpoint (Latitude, Longitude): 44.03139586, -103.78026092
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK3, BR2

Date Sampled: 07/03/2019
Site Length (m): 100
Mean Width (m): 8.4
Number of Pass: 3
Conductivity (umhos/cm): 354
pH: 8.8
Water Temperature (C): 11.5
Voltage: 0

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	6	6	8	6	71	2	60	29	1.58	97	117.7	24.8
Brook Trout	>=200mm	4	4	5	4	48	6	40	19	5.15	64	222.8	121.5
Brook Trout	All	10	10	12	10	119	8	100	48	6.74	161	159.7	63.5
Brown Trout	<200mm	22	32	58	22	380	15	320	154	13.42	515	141.8	39.5
Brown Trout	>=200mm	18	18	19	18	214	72	180	87	64.71	290	295.9	338.9
Brown Trout	All	40	44	52	40	523	91	440	212	81.33	708	211.1	174.3

Site Number: 416
Site Midpoint (Latitude, Longitude): 44.02941027, -103.78222298
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK1, BR1

Date Sampled: 07/02/2019
Site Length (m): 100
Mean Width (m): 6.2
Number of Pass: 3
Conductivity (umhos/cm): 375
pH: 8.7
Water Temperature (C): 13.1
Voltage: 225

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	8	8	10	8	128	5	80	52	4.70	129	151.0	41.1
Brook Trout	>=200mm	19	25	41	19	400	55	250	162	48.98	402	236.6	137.1
Brook Trout	All	27	35	52	27	560	61	350	227	54.36	563	211.2	108.6
Brown Trout	<200mm	27	44	86	27	705	39	440	285	34.69	708	163.6	55.1

Brown Trout	>=200mm	54	59	67	54	945	191	590	383	170.76	949	258.3	202.4
Brown Trout	All	81	98	118	81	1569	241	980	636	214.84	1577	226.8	153.3

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 Castle Creek, 2009-2019

Site 388

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	May 27, 2014	23	23-24	
	May 17, 2016	36	35-39	
	May 17, 2017	25	25-27	
	Jun 22, 2017	112	111-115	
	Jun 13, 2018	28	28-29	
	Jul 02, 2019	12	12-14	
Brook Trout >=200mm	May 27, 2014	5	5-7	BK2

Brook Trout >=200mm	May 17, 2016	5	5-5	BK2
	May 17, 2017	2	2-6	BK3
	Jun 22, 2017	4	4-4	BK2
	Jul 02, 2019	2	2-3	BK3
Brown Trout <200mm	May 27, 2014	29	29-30	
	May 17, 2016	65	61-72	
	May 17, 2017	131	121-142	
	Jun 13, 2018	60	57-66	
	Jul 02, 2019	30	30-31	
Brown Trout >=200mm	May 27, 2014	18	18-19	BR2
	May 17, 2016	24	24-24	BR1
	May 17, 2017	13	13-13	BR2
	Jun 13, 2018	7	7-8	BR2
	Jul 02, 2019	8	8-10	BR2

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 02, 2019	2	3-3	
Brown Trout <200mm	Jul 02, 2019	13	8-38	
Brown Trout >=200mm	Jul 02, 2019	6	6-6	BR2

Site 402

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 02, 2019	15	15-16	
Brook Trout >=200mm	Jul 02, 2019	3	3-4	BK3
Brown Trout <200mm	Jul 02, 2019	21	21-23	
Brown Trout >=200mm	Jul 02, 2019	34	34-35	BR1

Site 411

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 03, 2019	30	11-145	
Brook Trout >=200mm	Jul 03, 2019	13	12-18	BK2
Brown Trout <200mm	Jul 03, 2019	23	15-49	
Brown Trout >=200mm	Jul 03, 2019	14	11-25	BR2

Site 412

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 03, 2019	6	6-8	
Brook Trout >=200mm	Jul 03, 2019	4	4-5	BK3
Brown Trout <200mm	Jul 03, 2019	32	22-58	
Brown Trout >=200mm	Jul 03, 2019	18	18-19	BR2

Site 416

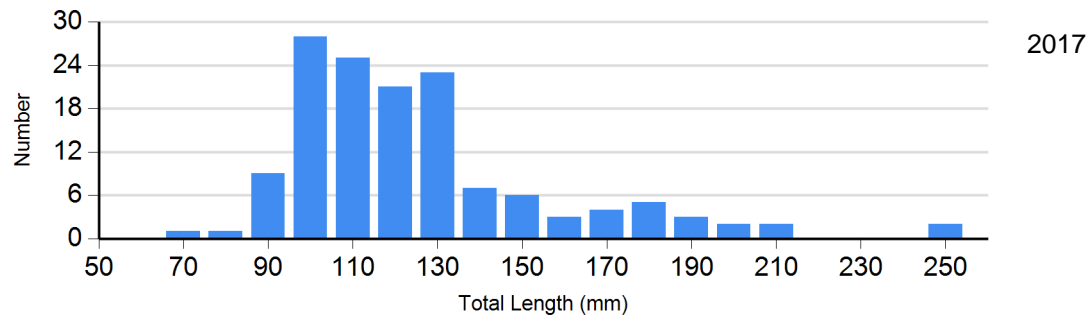
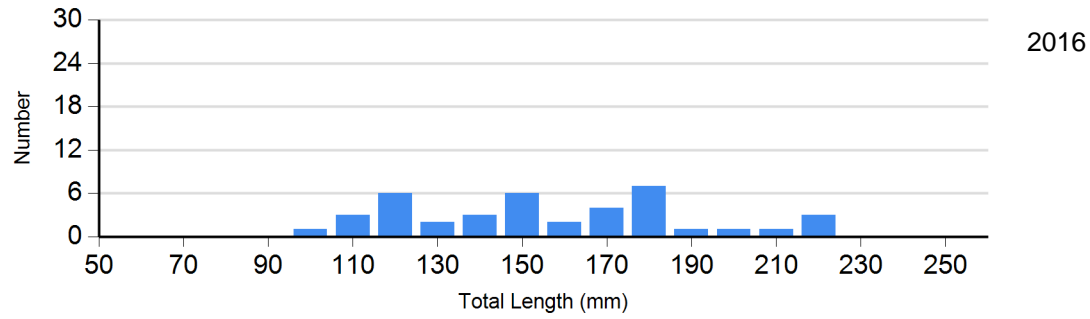
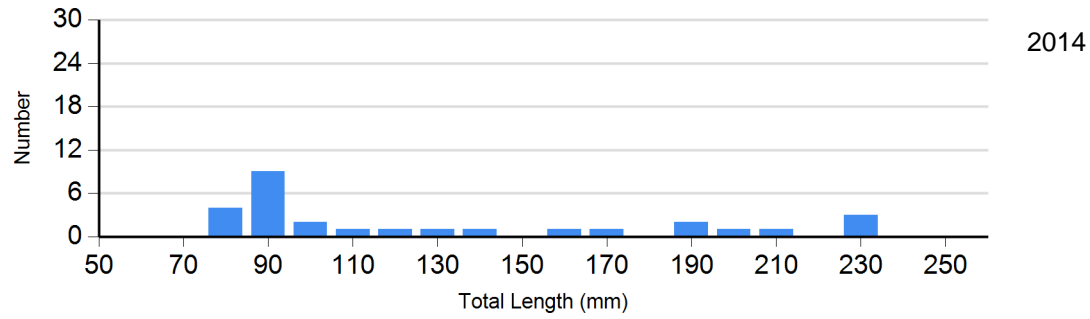
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 02, 2019	8	8-10	
Brook Trout >=200mm	Jul 02, 2019	25	19-41	BK1
Brown Trout <200mm	Jul 02, 2019	44	27-86	
Brown Trout >=200mm	Jul 02, 2019	59	54-67	BR1

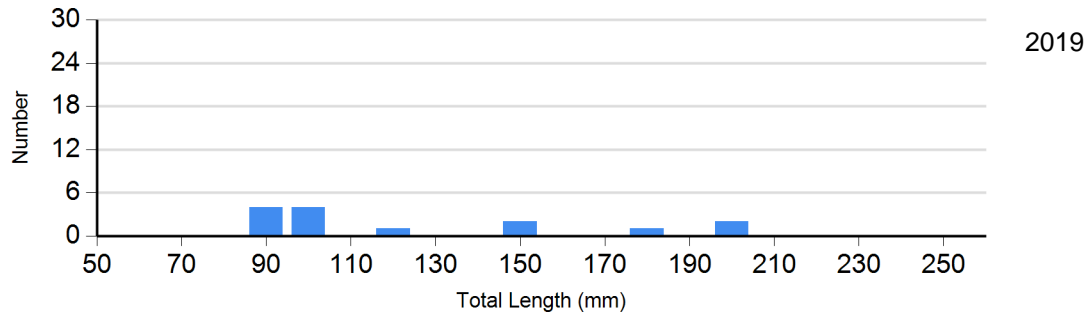
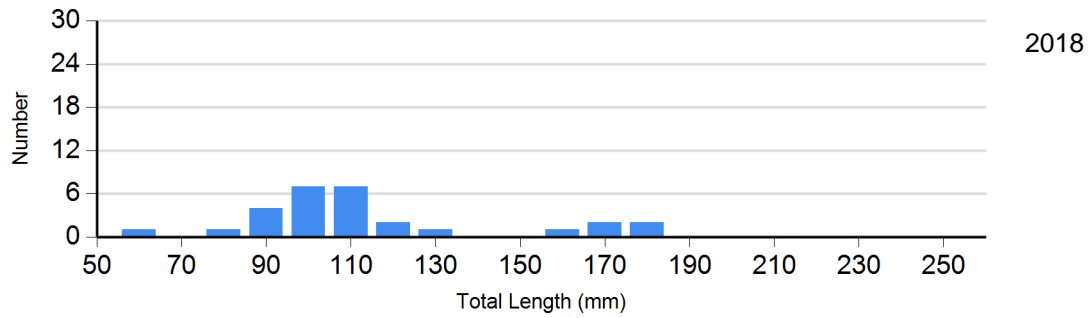
Length Frequency Distribution

Length frequency histogram of species sampled by year.

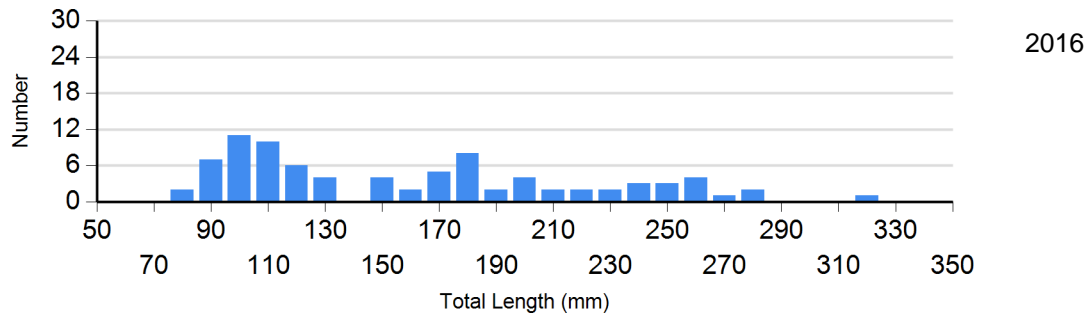
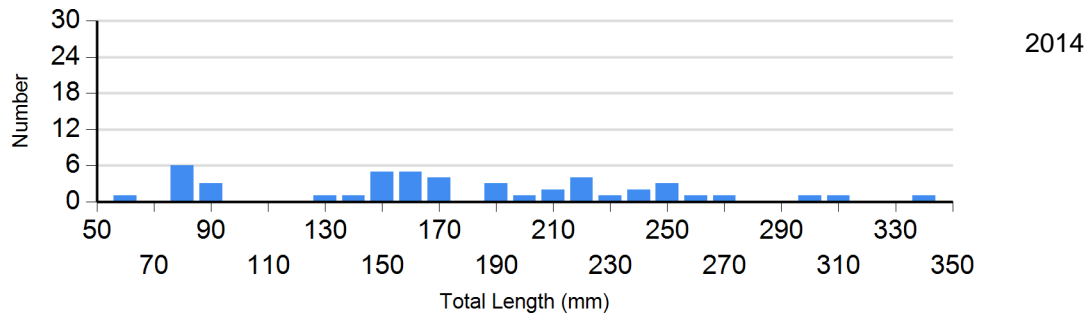
Site: 388

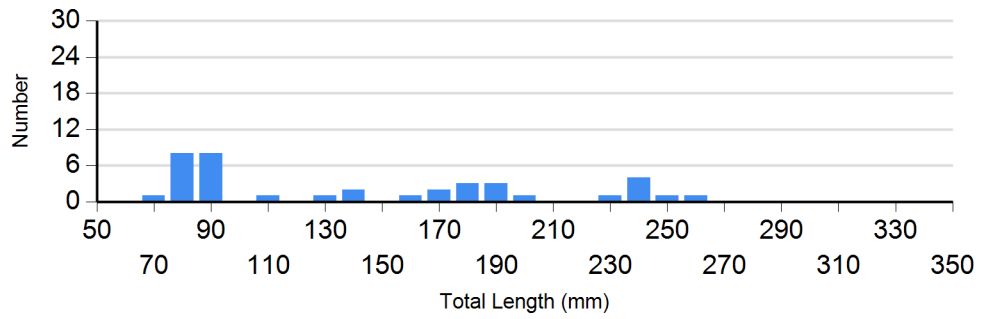
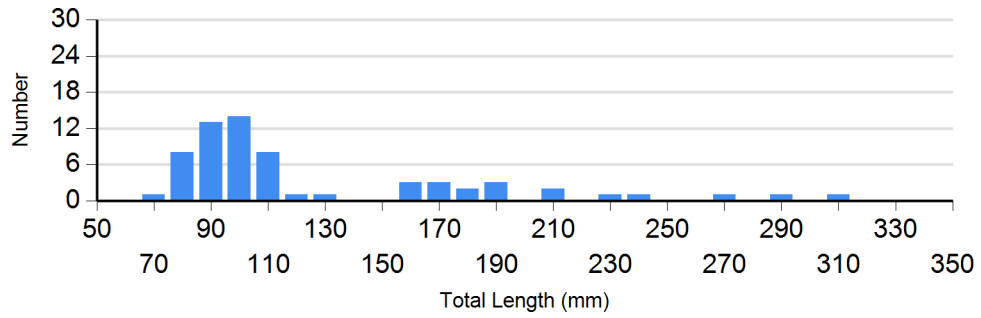
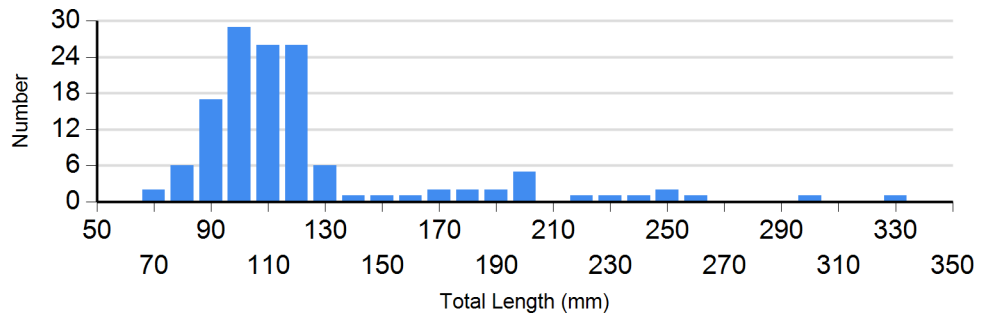
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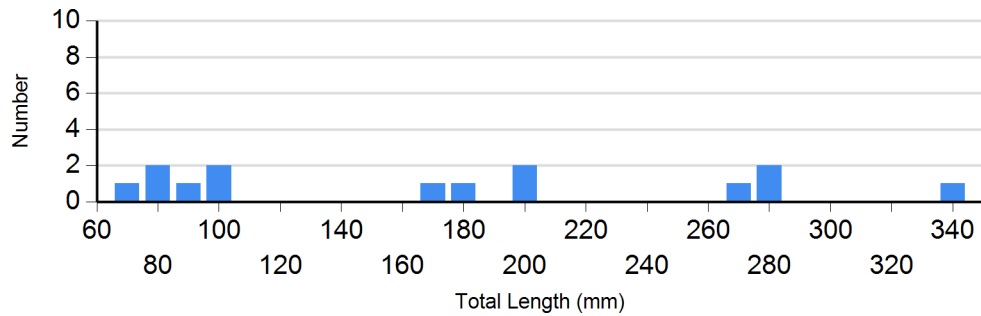


Site: 388
Species: Brown Trout

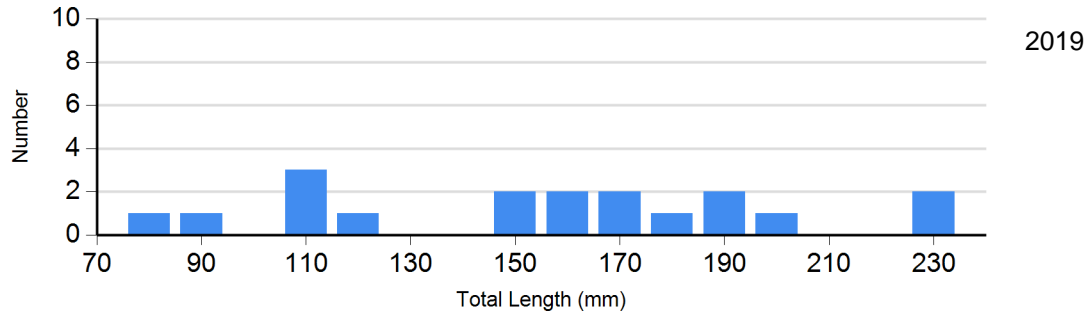




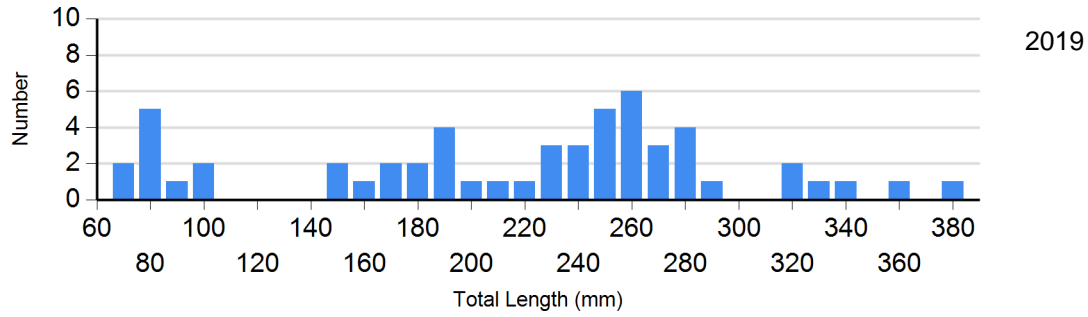
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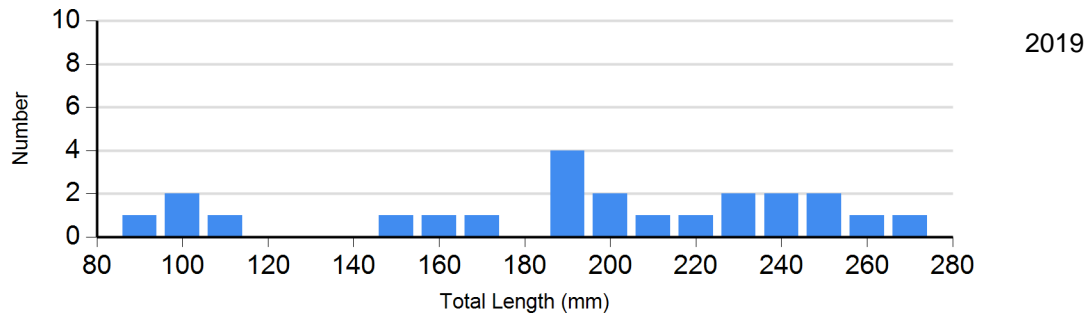
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Species: Brook Trout



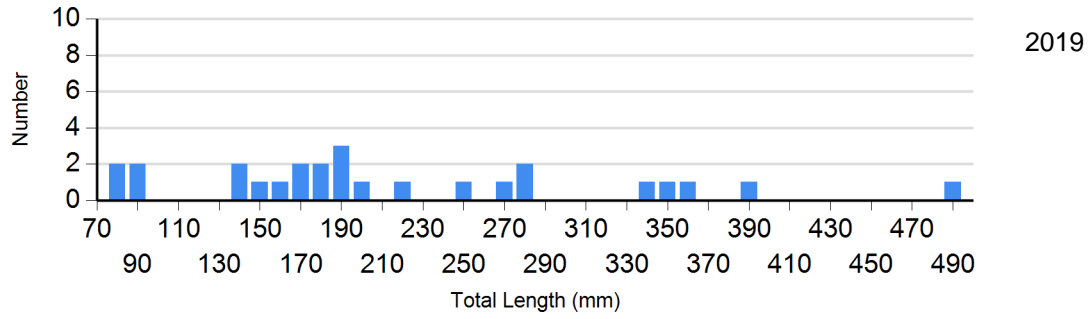
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Species: Brown Trout



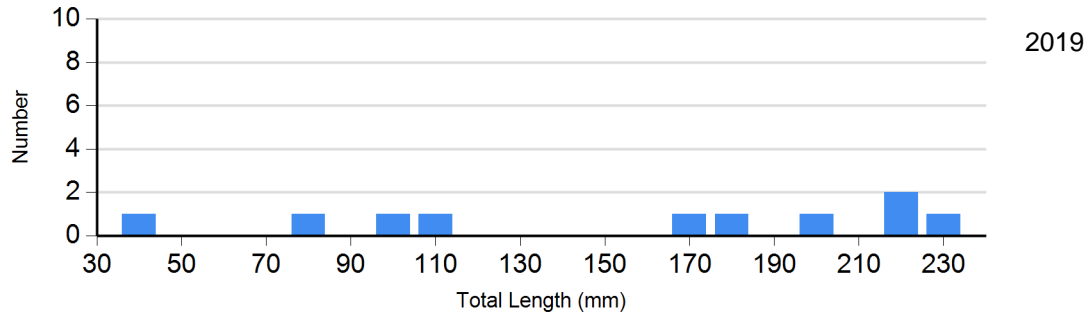
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Species: Brook Trout



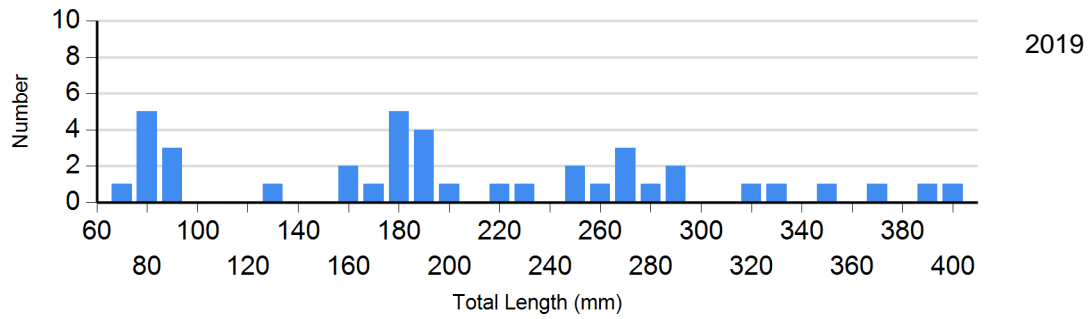
Site: 411
Species: Brown Trout



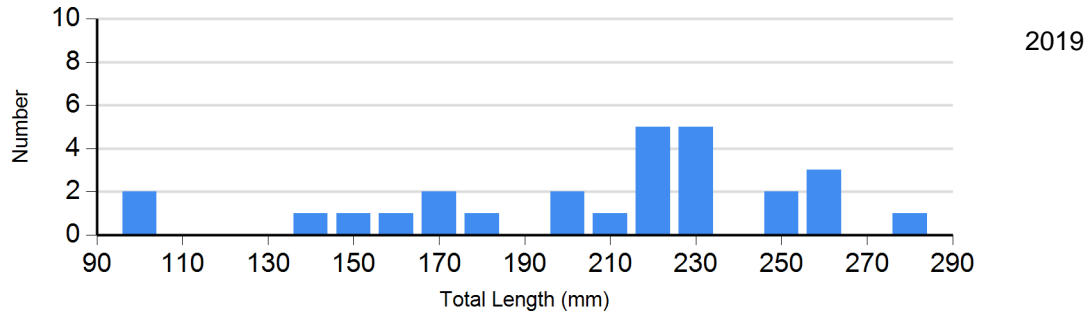
Site: 412
Species: Brook Trout



Site: 412
Species: Brown Trout



Site: 416
Species: Brook Trout



Site: 416
Species: Brown Trout

