

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Spearfish Creek, Lawrence County
09-0021-00
2019

Table 1. Population and Biomass Estimates for Spearfish Creek

Site Number: 72	Date Sampled: 06/27/2019	Conductivity (umhos/cm):	582
Site Midpoint (Latitude, Longitude): 44.56536734, -103.88470213	Site Length (m): 100	pH:	8.6
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 9.7	Water Temperature (C):	15.8
Stream Classification: BR2	Number of Pass: 9	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)
Brown Trout	<200mm	5	5	6	5	51	2	50	21	1.54	80	140.8	33.4
Brown Trout	>=200mm	6	6	7	6	62	21	60	25	18.60	97	318.2	337.2
Brown Trout	All	11	11	12	11	113	23	110	46	20.14	177	237.5	199.1

Site Number: 77	Date Sampled: 06/27/2019	Conductivity (umhos/cm):	590
Site Midpoint (Latitude, Longitude): 44.56232957, -103.88249874	Site Length (m): 100	pH:	8.6
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 12.4	Water Temperature (C):	56.3
Stream Classification: 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)
Brown Trout	<200mm	10	20	70	10	162	2	200	65	2.08	322	96.4	14.4
Brown Trout	>=200mm	11	11	11	11	89	45	110	36	39.78	177	357.5	501.5
Brown Trout	All	21	22	26	21	178	48	220	72	42.77	354	233.1	269.6

Site Number: 94	Date Sampled: 06/27/2019	Conductivity (umhos/cm):	519
Site Midpoint (Latitude, Longitude): 44.55154194, -103.88001084	Site Length (m): 100	pH:	8.7

Survey Completed by: South Dakota Game, Fish and Parks

Mean Width (m): 9.0

Water Temperature (C): 17.3

Stream Classification: 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)
Brown Trout	<200mm	3	3	4	3	33	1	30	13	0.61	48	93.7	20.7
Brown Trout	>=200mm	9	9	10	9	100	61	90	40	54.47	145	383.1	611.3
Brown Trout	All	12	12	13	12	133	62	120	54	55.09	193	310.8	463.7
White Sucker	All	1	1	1	1	11	6	10	4	5.43	16	375.0	548.0

Site Number: 107

Date Sampled: 07/18/2019

Conductivity (umhos/cm): 516

Site Midpoint (Latitude, Longitude): 44.54152174, -103.87458700

Site Length (m): 100

pH: 8.6

Survey Completed by: South Dakota Game, Fish and Parks

Mean Width (m): 9.0

Water Temperature (C): 17.5

Stream Classification: BR2

Number of Pass: 3

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)
Brown Trout	<200mm	6	6	8	6	67	2	60	27	1.40	97	122.7	23.3
Brown Trout	>=200mm	8	8	9	8	89	33	80	36	29.29	129	328.3	367.1
Brown Trout	All	14	14	16	14	156	34	140	63	30.68	225	240.1	219.8

Site Number: 111

Date Sampled: 07/18/2019

Conductivity (umhos/cm): 517

Site Midpoint (Latitude, Longitude): 44.53951113, -103.87163034

Site Length (m): 100

pH: 8.6

Survey Completed by: South Dakota Game, Fish and Parks

Mean Width (m): 8.3

Water Temperature (C): 17.1

Stream Classification: BK0, BR1

Number of Pass: 3

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	2	2	2	2	24	1	20	10	0.51	32	120.5	23.5

Brook Trout	All	2	2	2	2	24	1	20	10	0.51	32	120.5	23.5
Brown Trout	<200mm	8	8	9	8	96	5	80	39	4.67	129	139.5	54.4
Brown Trout	>=200mm	33	33	34	33	397	137	330	161	122.23	531	309.3	344.7
Brown Trout	All	41	41	42	41	493	142	410	200	126.91	660	276.2	288.0

Site Number: 173

Site Midpoint (Latitude, Longitude): 44.50286489, -103.86726609

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1

Date Sampled: 07/18/2019

Site Length (m): 100

Mean Width (m): 8.8

Number of Pass: 3

Conductivity (umhos/cm): 445

pH: 8.9

Water Temperature (C): 13.6

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)
Brown Trout	<200mm	9	9	10	9	102	6	90	41	5.38	145	128.1	59.0
Brown Trout	>=200mm	112	115	120	112	1305	381	1150	529	340.06	1850	301.1	291.7
Brown Trout	All	121	124	129	121	1408	386	1240	570	344.91	1995	288.2	274.4

Site Number: 183

Site Midpoint (Latitude, Longitude): 44.49536447, -103.86558246

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1

Date Sampled: 06/19/2019

Site Length (m): 100

Mean Width (m): 6.3

Number of Pass: 2

Conductivity (umhos/cm): 447

pH: 8.9

Water Temperature (C): 13.3

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)
Brown Trout	<200mm	7	6	11	7	95	3	60	39	2.72	97	134.0	32.0
Brown Trout	>=200mm	105	139	179	105	2203	616	1390	892	550.03	2237	294.4	279.6
Brown Trout	All	112	174	251	112	2758	728	1740	1117	650.42	2800	284.4	264.1

Site Number: 184

Site Midpoint (Latitude, Longitude): 44.49446503, -103.86553818

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1

Date Sampled: 07/10/2019

Site Length (m): 100

Mean Width (m): 8.3

Number of Pass: 3

Conductivity (umhos/cm): 452

pH: 8.8

Water Temperature (C): 12.7

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)
Brown Trout	<200mm	7	7	8	7	84	3	70	34	2.39	113	133.4	31.9
Brown Trout	>=200mm	71	71	73	71	851	239	710	345	213.12	1142	298.2	280.6
Brown Trout	All	78	78	80	78	935	241	780	379	215.51	1255	283.4	258.2

Site Number: 186

Site Midpoint (Latitude, Longitude): 44.49268937, -103.86552726

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1

Date Sampled: 07/10/2019

Site Length (m): 100

Mean Width (m): 6.7

Number of Pass: 3

Conductivity (umhos/cm): 441

pH: 8.8

Water Temperature (C): 13.2

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)
Brown Trout	<200mm	4	8	42	4	119	3	80	48	2.49	129	122.0	23.5
Brown Trout	>=200mm	53	57	64	53	845	215	570	342	191.60	917	287.7	253.9
Brown Trout	All	57	64	75	57	949	226	640	384	201.43	1030	276.0	237.8

Site Number: 205

Site Midpoint (Latitude, Longitude): 44.47880965, -103.85669154

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR2

Date Sampled: 05/29/2019

Site Length (m): 100

Mean Width (m): 11.5

Number of Pass: 3

Conductivity (umhos/cm): 0

pH: 8.0

Water Temperature (C): 0.0

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)
Brown Trout	<200mm	58	74	97	58	643	10	740	261	9.10	1191	112.2	15.8
Brown Trout	>=200mm	32	32	34	32	278	69	320	113	61.22	515	273.6	246.4
Brown Trout	All	90	102	116	90	887	87	1020	359	77.47	1641	169.6	97.8

Site Number: 205

Site Midpoint (Latitude, Longitude): 44.47880965, -103.85669154

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1, RB2

Date Sampled: 06/17/2019

Site Length (m): 100

Mean Width (m): 11.8

Number of Pass: 3

Conductivity (umhos/cm): 0

pH: 7.0

Water Temperature (C): 0.0

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)
Brown Trout	<200mm	28	28	29	28	238	11	280	96	9.98	451	144.8	47.0
Brown Trout	>=200mm	68	68	70	68	577	118	680	234	105.64	1094	260.5	205.0
Brown Trout	All	96	96	98	96	815	129	960	330	115.62	1545	226.7	158.9
Rainbow Trout	<200mm	1	1	1	1	8	0	10	3	0.11	16	108.0	15.0
Rainbow Trout	>=200mm	1	1	1	1	8	3	10	3	2.32	16	322.0	306.0
Rainbow Trout	All	2	2	2	2	17	3	20	7	2.43	32	215.0	160.5

Site Number: 205

Site Midpoint (Latitude, Longitude): 44.47880965, -103.85669154

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR2

Date Sampled: 07/18/2019

Site Length (m): 100

Mean Width (m): 12.0

Number of Pass: 3

Conductivity (umhos/cm): 426

pH: 8.8

Water Temperature (C): 13.7

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)
Brown Trout	<200mm	16	17	21	16	141	8	170	57	7.42	274	138.1	58.9

Brown Trout	>=200mm	25	25	26	25	208	47	250	84	41.62	402	264.4	224.4
Brown Trout	All	41	42	46	41	349	56	420	141	49.80	676	215.1	159.8

Site Number: 261
Site Midpoint (Latitude, Longitude): 44.44710020, -103.86756038
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR2, RB2

Date Sampled: 06/17/2019
Site Length (m): 100
Mean Width (m): 7.2
Number of Pass: 3
Conductivity (umhos/cm): 0
pH: 7.0
Water Temperature (C): 0.0
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)
Brown Trout	<200mm	6	6	7	6	83	4	60	34	3.84	97	159.5	51.7
Brown Trout	>=200mm	8	8	8	8	111	34	80	45	30.66	129	286.9	309.0
Brown Trout	All	14	14	15	14	194	39	140	79	34.50	225	232.3	198.7
Rainbow Trout	>=200mm	1	1	1	1	14	8	10	6	7.52	16	390.0	606.0
Rainbow Trout	All	1	1	1	1	14	8	10	6	7.52	16	390.0	606.0

Site Number: 340
Site Midpoint (Latitude, Longitude): 44.40182261, -103.89476328
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR2, RB2

Date Sampled: 06/17/2019
Site Length (m): 100
Mean Width (m): 10.2
Number of Pass: 3
Conductivity (umhos/cm): 0
pH: 7.0
Water Temperature (C): 0.0
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)
Brown Trout	<200mm	5	5	7	5	49	3	50	20	2.38	80	167.8	54.2
Brown Trout	>=200mm	22	23	27	22	226	35	230	92	31.53	370	243.8	155.9
Brown Trout	All	27	28	32	27	276	38	280	112	33.75	451	229.7	137.1
Rainbow Trout	<200mm	3	2	3	3	20	1	20	8	0.72	32	143.0	41.0
Rainbow Trout	>=200mm	5	5	7	5	49	9	50	20	7.87	80	258.2	179.0

Rainbow Trout All 8 32 285 8 315 40 320 128 35.80 515 215.0 127.3

Site Number: 354

Site Midpoint (Latitude, Longitude): 44.39949341, -103.90334954

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1, RB2

Date Sampled: 06/20/2019

Site Length (m): 100

Mean Width (m): 11.9

Number of Pass: 3

Conductivity (umhos/cm): 0

pH: 7.0

Water Temperature (C): 0.0

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)
Brown Trout	<200mm	44	60	87	44	505	25	600	205	21.92	965	155.8	48.6
Brown Trout	>=200mm	104	106	110	104	893	138	1060	362	122.96	1706	237.2	154.3
Brown Trout	All	148	157	167	148	1322	162	1570	536	145.03	2526	213.0	122.8
Rainbow Trout	>=200mm	2	2	2	2	17	4	20	7	3.65	32	280.0	242.5
Rainbow Trout	All	2	2	2	2	17	4	20	7	3.65	32	280.0	242.5

Site Number: 399

Site Midpoint (Latitude, Longitude): 44.37416853, -103.91574134

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1, RB2

Date Sampled: 06/20/2019

Site Length (m): 100

Mean Width (m): 9.4

Number of Pass: 3

Conductivity (umhos/cm): 436

pH: 8.9

Water Temperature (C): 0.0

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)
Brown Trout	<200mm	51	60	74	51	635	21	600	257	18.47	965	135.1	32.6
Brown Trout	>=200mm	41	46	55	41	487	73	460	197	65.19	740	240.3	149.9
Brown Trout	All	92	109	128	92	1154	98	1090	467	87.45	1754	182.0	84.9
Rainbow Trout	<200mm	1	1	2	1	11	0	10	4	0.00	16	85.0	0.0
Rainbow Trout	>=200mm	1	1	1	1	11	3	10	4	2.79	16	315.0	295.0
Rainbow Trout	All	2	2	3	2	21	3	20	9	2.79	32	200.0	147.5

Site Number: 410
Site Midpoint (Latitude, Longitude): 44.36752747, -103.92224962
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR1

Date Sampled: 06/20/2019 **Conductivity (umhos/cm):** 445
Site Length (m): 100 **pH:** 9.0
Mean Width (m): 7.6 **Water Temperature (C):** 0.0
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)
Brown Trout	<200mm	68	69	72	68	904	27	690	366	24.18	1110	132.4	30.0
Brown Trout	>=200mm	60	69	82	60	904	135	690	366	120.67	1110	240.5	149.6
Brown Trout	All	128	137	147	128	1794	154	1370	727	137.81	2204	183.0	86.0

Site Number: 443
Site Midpoint (Latitude, Longitude): 44.34924515, -103.92295928
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR1

Date Sampled: 06/24/2019 **Conductivity (umhos/cm):** 45
Site Length (m): 100 **pH:** 9.1
Mean Width (m): 6.0 **Water Temperature (C):** 10.4
Number of Pass: 2 **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)
Brown Trout	<200mm	101	122	146	101	2024	82	1220	820	73.04	1963	149.0	40.4
Brown Trout	>=200mm	109	122	137	109	2024	232	1220	820	206.83	1963	228.2	114.4
Brown Trout	All	210	245	273	217	4065	320	2450	1646	286.14	3942	190.1	78.8

Site Number: 461
Site Midpoint (Latitude, Longitude): 44.33820434, -103.91420454
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR1

Date Sampled: 06/24/2019 **Conductivity (umhos/cm):** 450
Site Length (m): 100 **pH:** 9.0
Mean Width (m): 7.1 **Water Temperature (C):** 52.0
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)
Brown Trout	<200mm	104	123	143	104	1728	51	1230	700	45.35	1979	128.9	29.4
Brown Trout	>=200mm	43	43	45	43	604	76	430	245	67.89	692	225.2	125.9
Brown Trout	All	147	162	176	148	2276	131	1620	922	117.07	2607	157.1	57.6

Site Number: 478

Site Midpoint (Latitude, Longitude): 44.33212009, -103.90102072

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1

Date Sampled: 06/24/2019

Site Length (m): 100

Mean Width (m): 7.0

Number of Pass: 3

Conductivity (umhos/cm): 415

pH: 9.0

Water Temperature (C): 11.2

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)
Brown Trout	<200mm	86	99	115	86	1418	53	990	574	47.02	1593	144.4	37.1
Brown Trout	>=200mm	47	50	56	47	716	96	500	290	85.70	805	232.8	134.0
Brown Trout	All	133	149	165	133	2134	152	1490	864	136.01	2397	175.6	71.4

Site Number: 508

Site Midpoint (Latitude, Longitude): 44.31483138, -103.88577053

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1

Date Sampled: 06/24/2019

Site Length (m): 100

Mean Width (m): 6.0

Number of Pass: 3

Conductivity (umhos/cm): 450

pH: 9.0

Water Temperature (C): 13.2

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)
Brown Trout	<200mm	131	135	141	131	2247	72	1350	910	64.27	2172	135.7	32.0
Brown Trout	>=200mm	28	28	29	28	466	53	280	189	47.67	451	222.4	114.6
Brown Trout	All	159	162	167	159	2696	126	1620	1092	112.10	2607	150.9	46.6

Site Number: 555
Site Midpoint (Latitude, Longitude): 44.29518079, -103.88449651
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR1

Date Sampled: 07/17/2019
Site Length (m): 100
Mean Width (m): 6.4
Number of Pass: 3
Conductivity (umhos/cm): 0
pH: 0.0
Water Temperature (C): 0.0
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)
Brown Trout	<200mm	193	198	204	193	3089	93	1980	1251	83.01	3186	132.0	30.1
Brown Trout	>=200mm	65	67	71	65	1045	149	670	423	132.79	1078	234.5	142.3
Brown Trout	All	258	265	272	258	4135	241	2650	1675	215.43	4264	157.9	58.4

Site Number: 575
Site Midpoint (Latitude, Longitude): 44.28346470, -103.89868802
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR1

Date Sampled: 07/10/2019
Site Length (m): 100
Mean Width (m): 6.0
Number of Pass: 3
Conductivity (umhos/cm): 224
pH: 8.6
Water Temperature (C): 10.1
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)
Brown Trout	<200mm	267	273	279	267	4578	153	2730	1854	136.52	4393	137.3	33.4
Brown Trout	>=200mm	55	55	57	55	922	114	550	374	101.43	885	225.7	123.2
Brown Trout	All	322	329	336	322	5517	269	3290	2234	240.06	5294	152.4	48.7

Site Number: 589
Site Midpoint (Latitude, Longitude): 44.27357702, -103.90640841
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK0, BR1

Date Sampled: 07/17/2019
Site Length (m): 100
Mean Width (m): 6.1
Number of Pass: 3
Conductivity (umhos/cm): 482
pH: 8.7
Water Temperature (C): 9.5
Voltage: 270

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	2	2	33	1	20	13	0.52	32	120.0	18.0
Brook Trout	All	2	2	2	2	33	1	20	13	0.52	32	120.0	18.0
Brown Trout	<200mm	328	348	362	334	5680	171	3480	2300	152.80	5599	135.7	30.1
Brown Trout	>=200mm	64	65	68	64	1061	117	650	430	104.60	1046	219.3	110.4
Brown Trout	All	392	413	427	399	6740	291	4130	2730	260.24	6645	149.3	43.2

Site Number: 595

Site Midpoint (Latitude, Longitude): 44.27044197, -103.90986564

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1

Date Sampled: 06/13/2019

Site Length (m): 100

Mean Width (m): 4.5

Number of Pass: 3

Conductivity (umhos/cm): 221

pH: 8.6

Water Temperature (C): 12.2

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)
Brown Trout	<200mm	164	168	173	164	3756	120	1680	1521	107.32	2703	137.8	32.0
Brown Trout	>=200mm	25	25	27	25	559	66	250	226	59.25	402	226.6	118.7
Brown Trout	All	189	194	200	189	4337	189	1940	1757	168.35	3121	149.5	43.5

Site Number: 610

Site Midpoint (Latitude, Longitude): 44.26194220, -103.91969077

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK0, BR1

Date Sampled: 07/10/2019

Site Length (m): 100

Mean Width (m): 6.3

Number of Pass: 3

Conductivity (umhos/cm): 220

pH: 8.7

Water Temperature (C): 12.6

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	1	1	5	1	16	0	10	6	0.33	16	141.0	23.0
Brook Trout	All	1	1	5	1	16	0	10	6	0.33	16	141.0	23.0

Brown Trout	<200mm	281	281	283	281	4454	175	2810	1804	156.64	4521	136.6	39.4
Brown Trout	>=200mm	35	35	35	35	555	78	350	225	69.80	563	228.3	140.9
Brown Trout	All	316	316	318	316	5009	254	3160	2029	226.43	5084	146.7	50.6

Site Number: 624
Site Midpoint (Latitude, Longitude): 44.25259212, -103.92294152
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK0, BR1

Date Sampled: 06/25/2019 **Conductivity (umhos/cm):** 482
Site Length (m): 100
Mean Width (m): 6.4 **pH:** 8.3
Number of Pass: 3 **Water Temperature (C):** 10.9
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	41	41	43	41	642	10	410	260	8.75	660	118.0	15.3
Brook Trout	All	41	41	43	41	642	10	410	260	8.75	660	118.0	15.3
Brown Trout	<200mm	246	256	265	247	4006	117	2560	1622	104.68	4119	134.7	29.3
Brown Trout	>=200mm	37	37	38	37	579	78	370	234	69.34	595	230.1	134.1
Brown Trout	All	283	292	300	284	4569	196	2920	1850	175.33	4698	147.2	43.0

Site Number: 635
Site Midpoint (Latitude, Longitude): 44.24554088, -103.92572123
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK1, BR2

Date Sampled: 06/25/2019 **Conductivity (umhos/cm):** 468
Site Length (m): 100
Mean Width (m): 6.0 **pH:** 8.6
Number of Pass: 3 **Water Temperature (C):** 10.4
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	108	109	112	108	1828	63	1090	740	56.54	1754	139.6	34.6
Brook Trout	>=200mm	24	24	25	24	402	45	240	163	39.96	386	215.5	111.2
Brook Trout	All	132	133	136	132	2230	108	1330	903	96.71	2140	153.4	48.6
Brown Trout	<200mm	33	34	38	33	570	29	340	231	25.50	547	157.4	50.1

Brown Trout	>=200mm	21	21	21	21	352	60	210	143	53.76	338	246.1	171.0
Brown Trout	All	54	54	56	54	905	88	540	367	78.51	869	191.9	97.1

Site Number: 638

Site Midpoint (Latitude, Longitude): 44.24308785, -103.92587662

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2, BR3

Date Sampled: 06/25/2019

Site Length (m): 100

Mean Width (m): 4.0

Number of Pass: 3

Conductivity (umhos/cm): 492

pH: 8.3

Water Temperature (C): 10.6

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	99	103	109	99	2558	68	1030	1036	61.08	1657	130.6	26.7
Brook Trout	>=200mm	9	9	9	9	223	26	90	91	23.26	145	219.3	116.6
Brook Trout	All	108	112	118	108	2781	95	1120	1126	85.00	1802	138.0	34.2
Brown Trout	<200mm	4	4	4	4	99	5	40	40	4.57	64	152.5	51.5
Brown Trout	>=200mm	2	2	2	2	50	7	20	20	5.94	32	228.5	134.0
Brown Trout	All	6	6	6	6	149	12	60	60	10.51	97	177.8	79.0

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, 2009-2019

Site 72

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 27, 2019	5	5-6	
Brown Trout >=200mm	Jun 27, 2019	6	6-7	BR2

Site 77

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 27, 2019	20	10-70	
Brown Trout >=200mm	Jun 27, 2019	11	11-11	BR2

Site 94

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 27, 2019	3	3-4	
Brown Trout >=200mm	Jun 27, 2019	9	9-10	BR2
White Sucker	Jun 27, 2019	1	1-1	

Site 107

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jul 18, 2019	6	6-8	
Brown Trout >=200mm	Jul 18, 2019	8	8-9	BR2

Site 111

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 18, 2019	2	2-2	
Brown Trout <200mm	Jul 18, 2019	8	8-9	
Brown Trout >=200mm	Jul 18, 2019	33	33-34	BR1

Site 173

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jul 18, 2019	9	9-10	
Brown Trout >=200mm	Jul 18, 2019	115	112-120	BR1

Site 183

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Aug 10, 2011	48	44-55	
	Jun 19, 2019	6	7-11	
Brown Trout >=200mm	Aug 10, 2011	56	53-62	BR1
	Jun 19, 2019	139	105-179	BR1

Site 184

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jul 10, 2019	7	7-8	
Brown Trout >=200mm	Jul 10, 2019	71	71-73	BR1

Site 186

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jul 10, 2019	8	4-42	
Brown Trout >=200mm	Jul 10, 2019	57	53-64	BR1

Site 205

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Sep 12, 2011	84	85-104	
	Jul 31, 2012	20	20-22	

Brown Trout <200mm	Jul 22, 2013	117	114-122	
	Jul 12, 2016	63	60-69	
	May 29, 2019	74	58-97	
	Jun 17, 2019	28	28-29	
	Jul 18, 2019	17	16-21	
Brown Trout >=200mm	Sep 12, 2011	73	72-76	BR1
	Jul 31, 2012	47	47-48	BR1
	Jul 22, 2013	38	38-40	BR1
	Jul 12, 2016	93	88-100	BR1
	May 29, 2019	32	32-34	BR2
	Jun 17, 2019	68	68-70	BR1
	Jul 18, 2019	25	25-26	BR2
Rainbow Trout <200mm	Sep 12, 2011	1	1-1	
	Jun 17, 2019	1	1-1	
Rainbow Trout >=200mm	Jul 31, 2012	1	1-1	RB2
	Jul 22, 2013	1	1-2	RB2

Rainbow Trout >=200mm	Jul 12, 2016	1	1-1	RB2
	Jun 17, 2019	1	1-1	RB2

Site 261

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 17, 2019	6	6-7	
Brown Trout >=200mm	Jun 17, 2019	8	8-8	BR2
Rainbow Trout >=200mm	Jun 17, 2019	1	1-1	RB2

Site 340

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 27, 2011	1	1-1	
Brook Trout >=200mm	Jul 27, 2011	1	1-5	BK3
	Jul 30, 2012	1	1-5	BK3
Brown Trout <200mm	Jul 27, 2011	52	48-59	
	Jul 30, 2012	85	73-100	
	Jul 24, 2013	39	34-49	
	Oct 21, 2015	84	64-112	
	Jun 14, 2016	96	71-129	

Brown Trout <200mm	Jun 17, 2019	5	5-7	
Brown Trout >=200mm	Jul 27, 2011	33	31-38	BR2
	Jul 30, 2012	45	44-48	BR1
	Jul 24, 2013	44	42-49	BR1
	Oct 21, 2015	47	44-53	BR1
	Jun 14, 2016	64	59-72	BR1
	Jun 17, 2019	23	22-27	BR2
Rainbow Trout <200mm	Jul 27, 2011	49	34-79	
	Jul 30, 2012	75	74-78	
	Jul 24, 2013	44	41-50	
	Oct 21, 2015	46	35-67	
	Jun 14, 2016	25	23-31	
	Jun 17, 2019	2	3-3	
Rainbow Trout >=200mm	Jul 27, 2011	4	4-4	RB2
	Jul 30, 2012	22	21-26	RB1
	Jul 24, 2013	14	14-16	RB1

Rainbow Trout >=200mm	Oct 21, 2015	14	14-16	RB1
	Jun 14, 2016	6	6-7	RB2
	Jun 17, 2019	5	5-7	RB2

Site 354

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 20, 2019	60	44-87	
Brown Trout >=200mm	Jun 20, 2019	106	104-110	BR1
Rainbow Trout >=200mm	Jun 20, 2019	2	2-2	RB2

Site 399

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 20, 2019	60	51-74	
Brown Trout >=200mm	Jun 20, 2019	46	41-55	BR1
Rainbow Trout <200mm	Jun 20, 2019	1	1-2	
Rainbow Trout >=200mm	Jun 20, 2019	1	1-1	RB2

Site 410

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 20, 2019	69	68-72	

Brown Trout >=200mm	Jun 20, 2019	69	60-82	BR1
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Site 443

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 24, 2019	122	101-146	
Brown Trout >=200mm	Jun 24, 2019	122	109-137	BR1

Site 461

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 24, 2019	123	104-143	
Brown Trout >=200mm	Jun 24, 2019	43	43-45	BR1

Site 478

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 24, 2019	99	86-115	
Brown Trout >=200mm	Jun 24, 2019	50	47-56	BR1

Site 508

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 24, 2019	135	131-141	
Brown Trout >=200mm	Jun 24, 2019	28	28-29	BR1

Site 555

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jul 17, 2019	198	193-204	
Brown Trout >=200mm	Jul 17, 2019	67	65-71	BR1

Site 575

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jul 10, 2019	273	267-279	
Brown Trout >=200mm	Jul 10, 2019	55	55-57	BR1

Site 589

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 17, 2019	2	2-2	
Brown Trout <200mm	Jul 17, 2019	348	334-362	
Brown Trout >=200mm	Jul 17, 2019	65	64-68	BR1

Site 595

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Jun 13, 2019	168	164-173	
Brown Trout >=200mm	Jun 13, 2019	25	25-27	BR1

Site 610

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 10, 2019	1	1-5	
Brown Trout <200mm	Jul 10, 2019	281	281-283	
Brown Trout >=200mm	Jul 10, 2019	35	35-35	BR1

Site 624

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 25, 2019	41	41-43	
Brown Trout <200mm	Jun 25, 2019	256	247-265	
Brown Trout >=200mm	Jun 25, 2019	37	37-38	BR1

Site 635

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 25, 2019	109	108-112	
Brook Trout >=200mm	Jun 25, 2019	24	24-25	BK1
Brown Trout <200mm	Jun 25, 2019	34	33-38	
Brown Trout >=200mm	Jun 25, 2019	21	21-21	BR2

Site 638

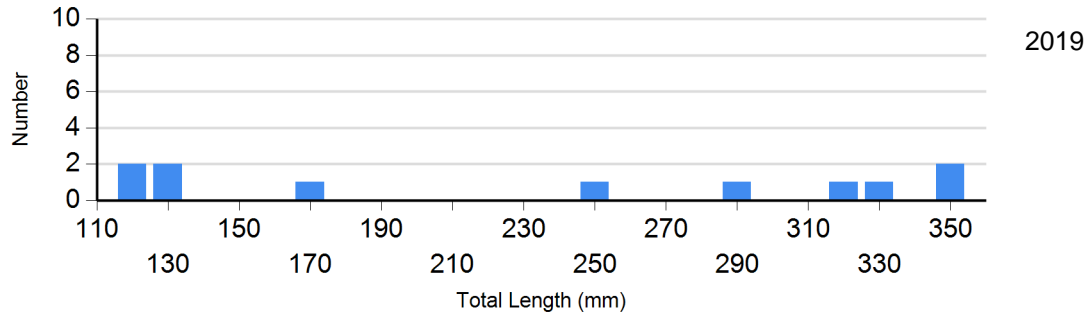
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jun 25, 2019	103	99-109	
Brook Trout >=200mm	Jun 25, 2019	9	9-9	BK2
Brown Trout <200mm	Jun 25, 2019	4	4-4	
Brown Trout >=200mm	Jun 25, 2019	2	2-2	BR3

Length Frequency Distribution

Length frequency histogram of species sampled by year.

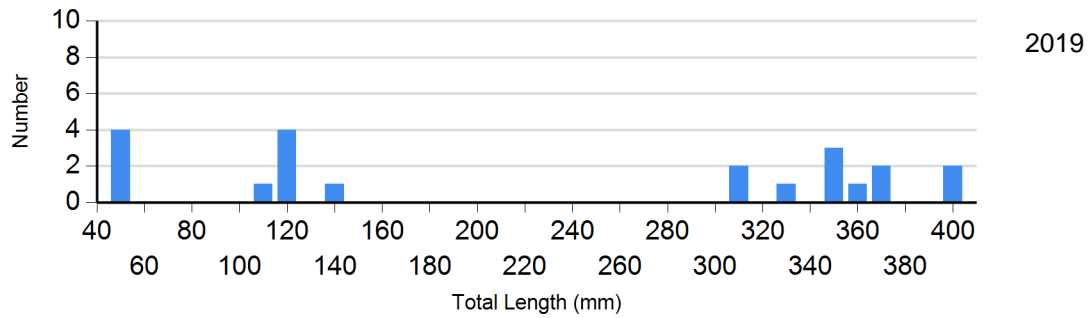
Site: 72

Species: Brown Trout



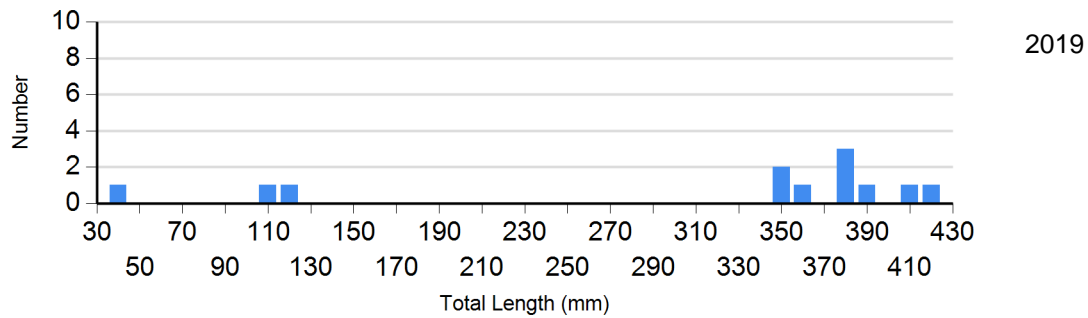
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Species: Brown Trout

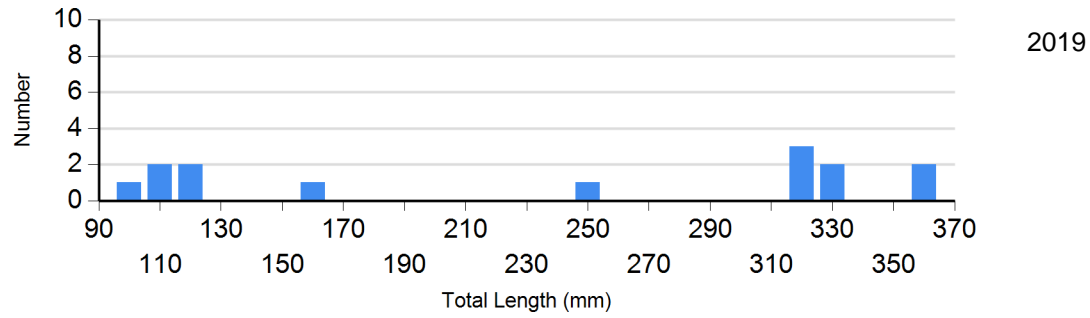


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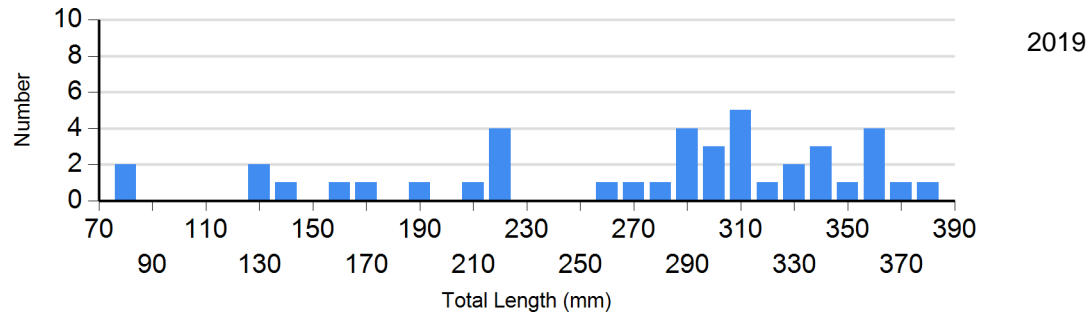
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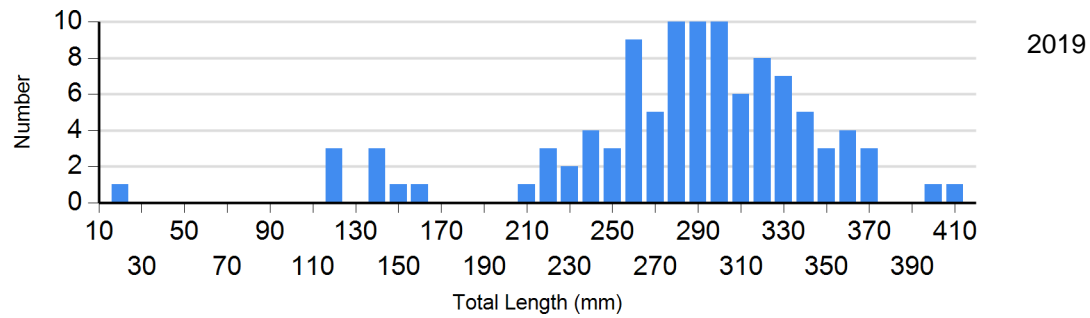
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Species: Brown Trout



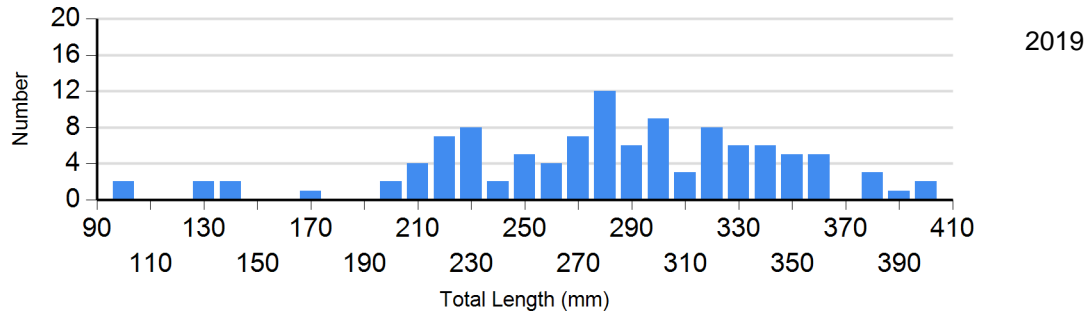
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Species: Brown Trout



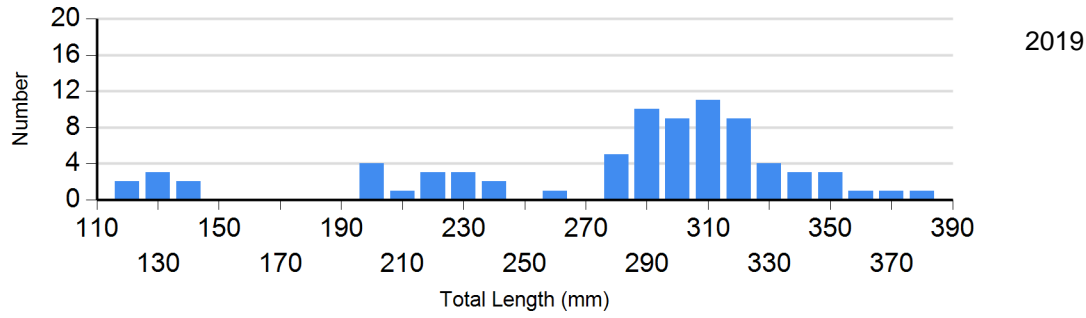
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Species: Brown Trout



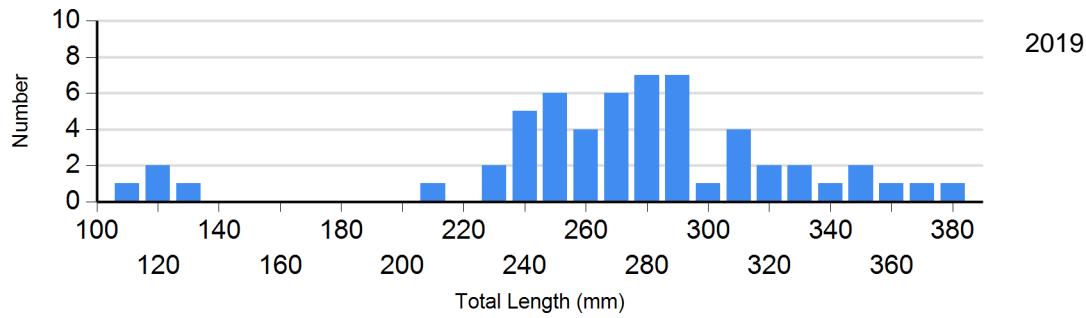
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Species: Brown Trout



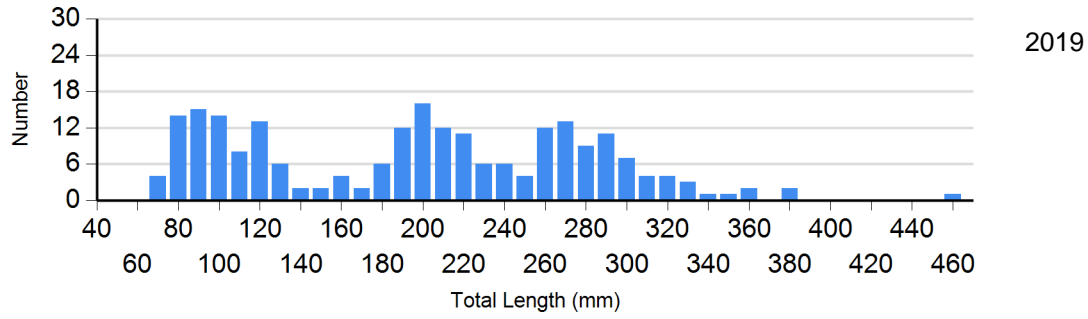
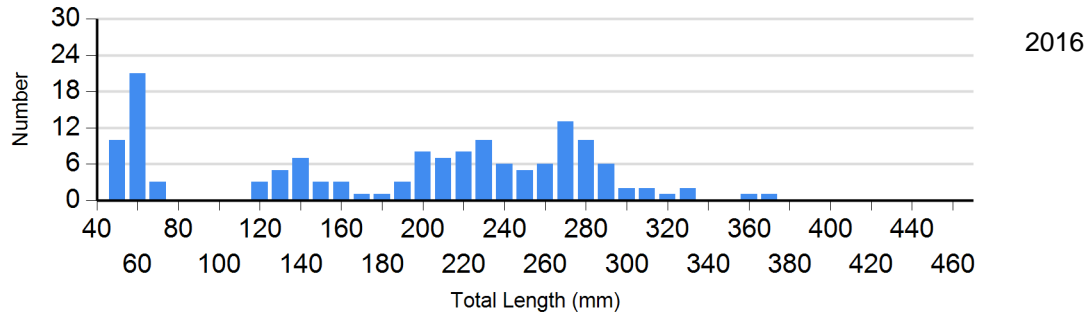
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Species: Brown Trout



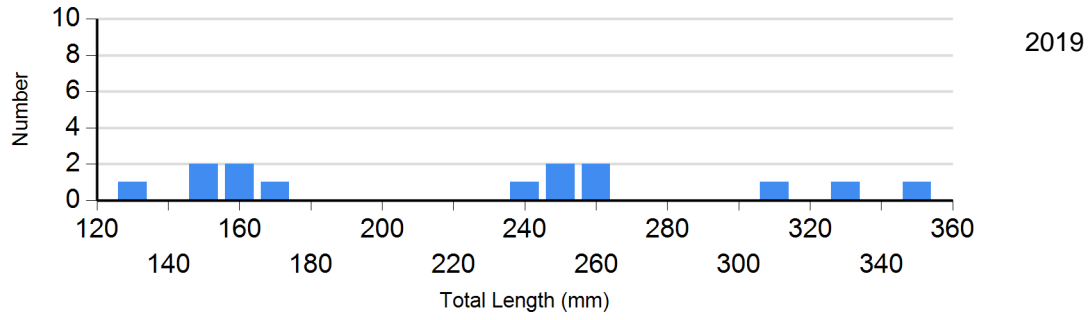
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Species: Brown Trout



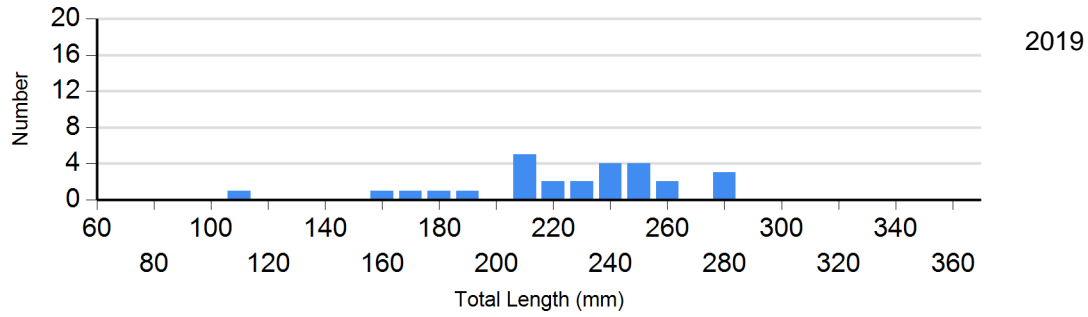
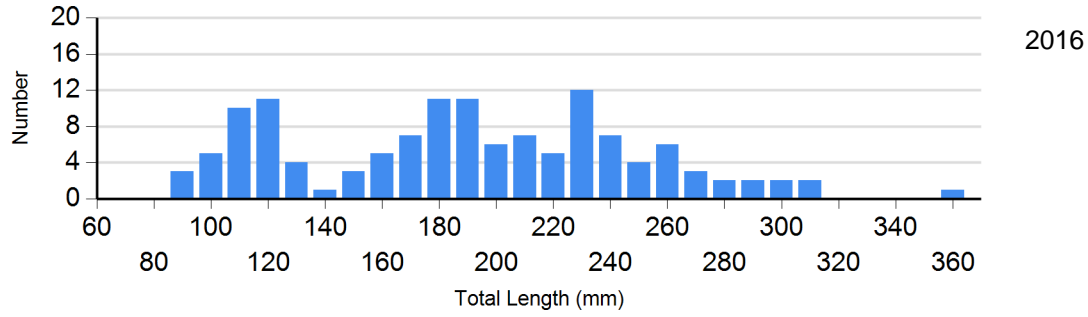
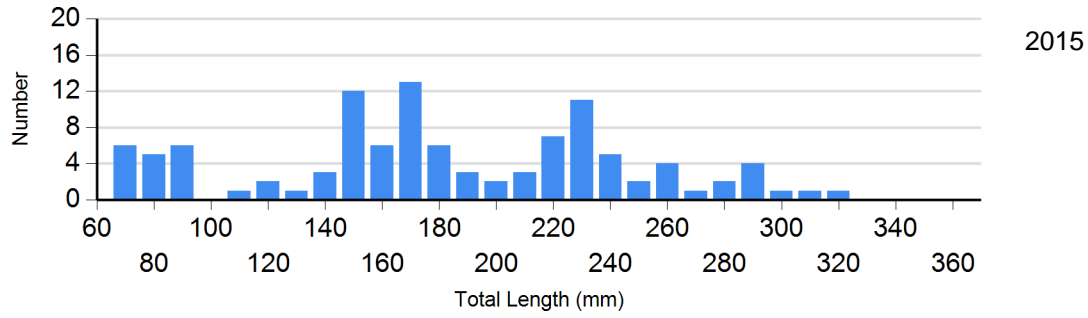
Site: 205
Species: Brown Trout



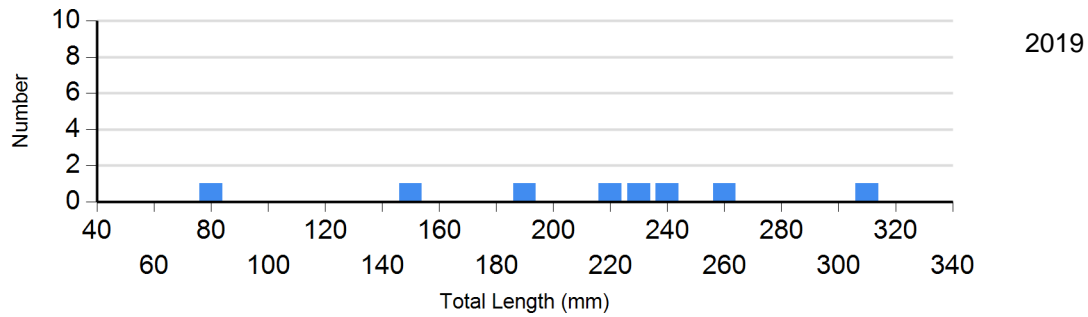
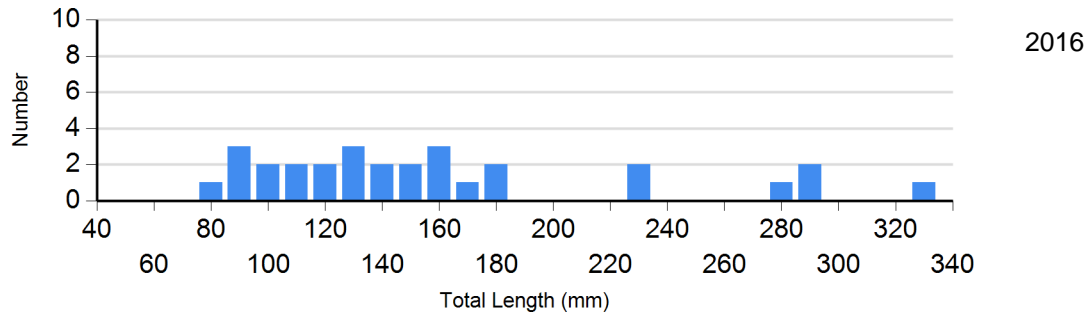
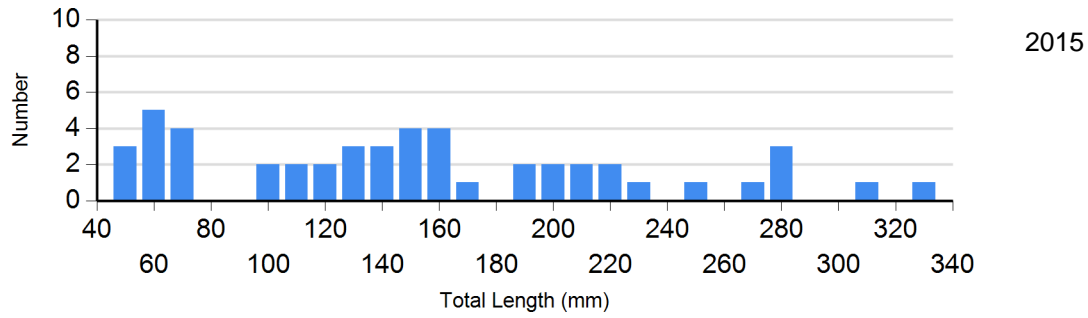
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Species: Brown Trout



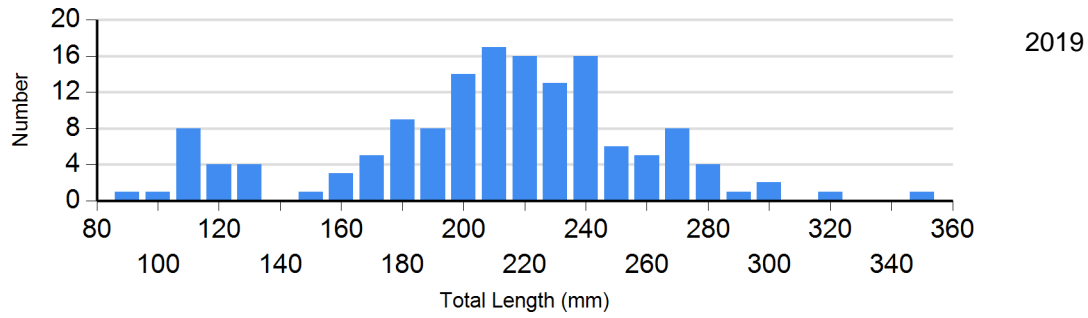
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Species: Brown Trout



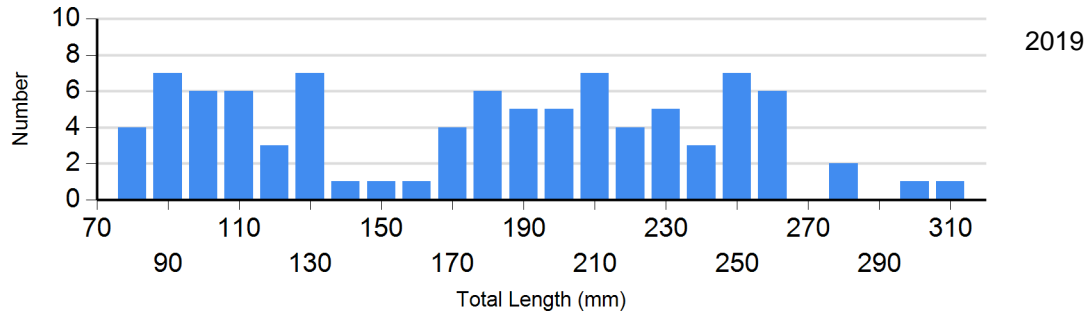
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Species: Rainbow Trout



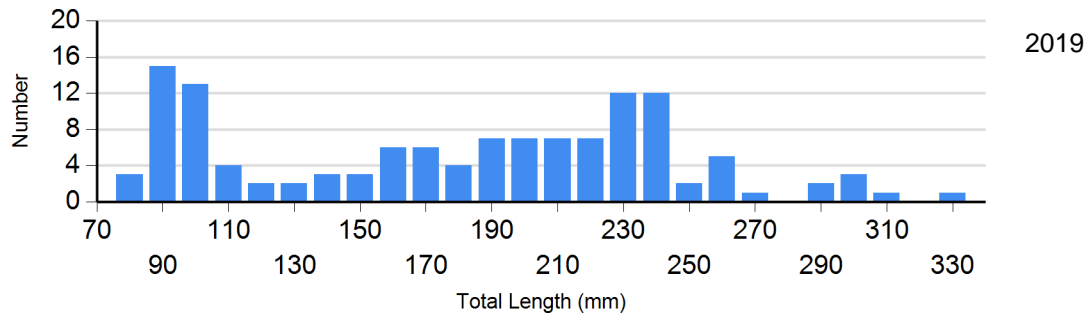
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Species: Brown Trout



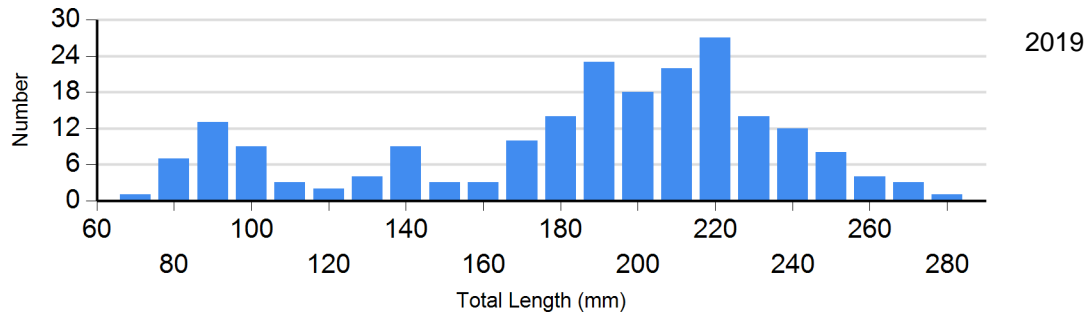
Site: 399
Species: Brown Trout



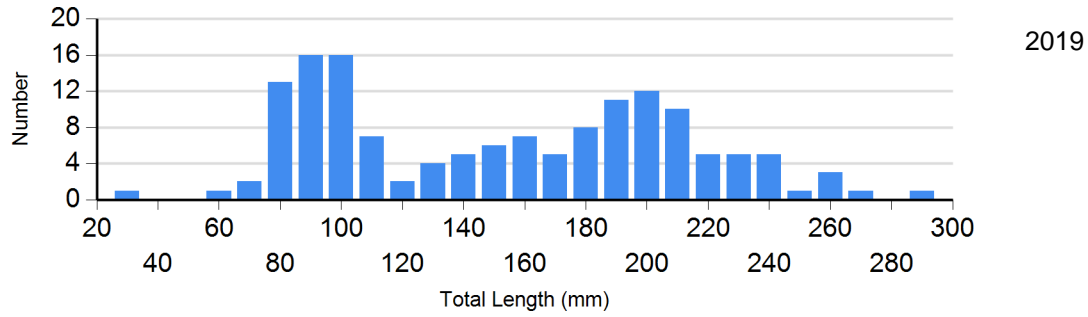
Site: 410
Species: Brown Trout



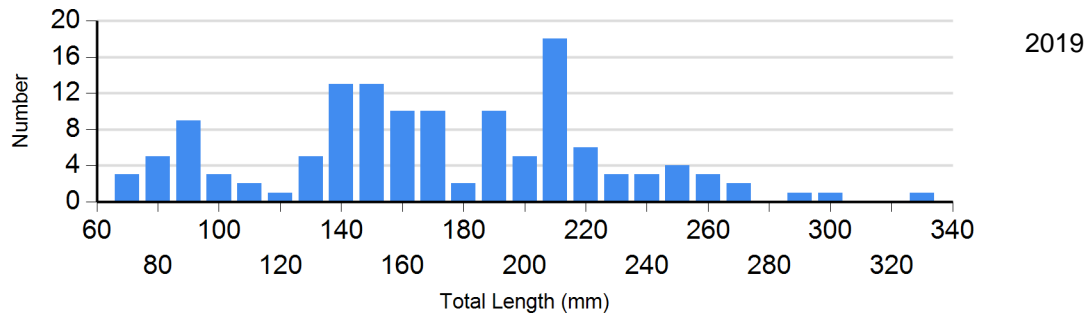
Site: 443
Species: Brown Trout



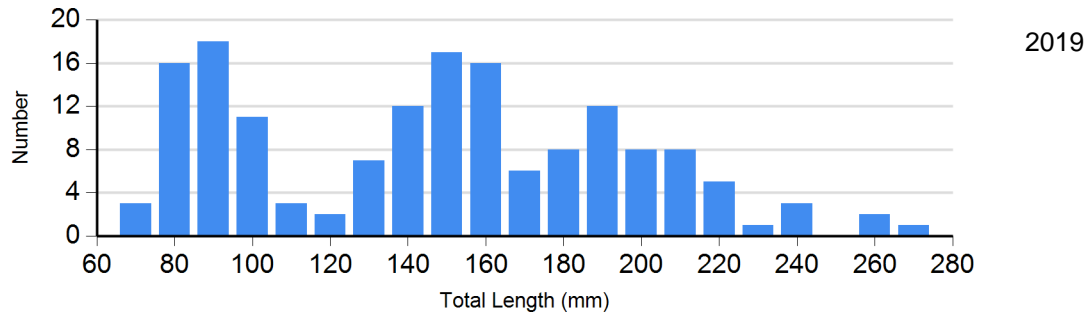
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Species: Brown Trout



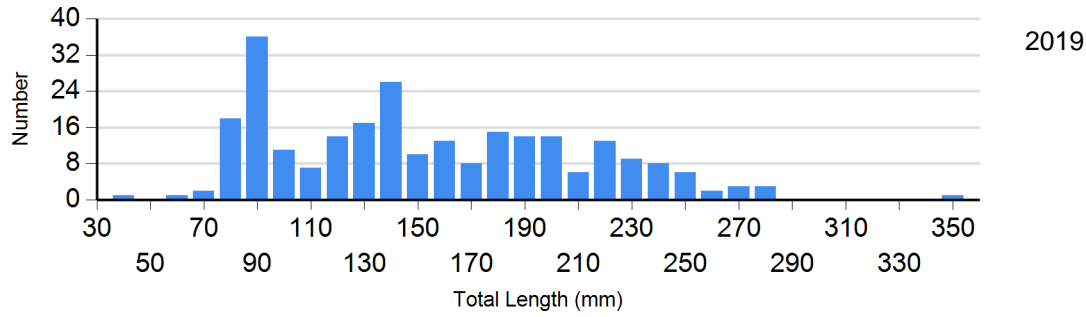
Site: 478
Species: Brown Trout



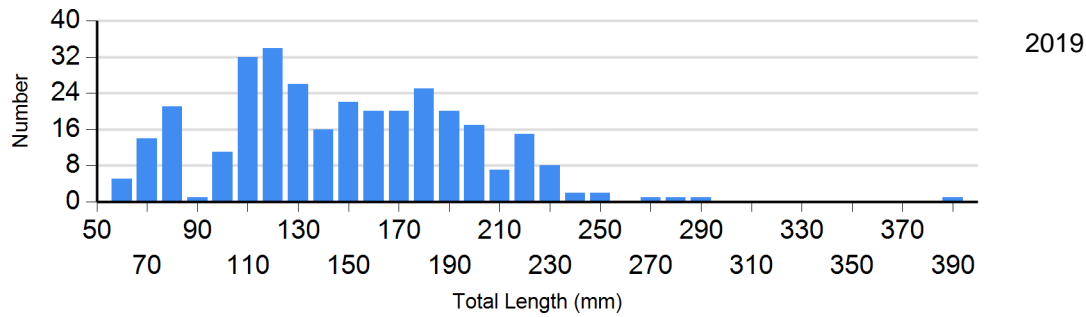
Site: 508
Species: Brown Trout



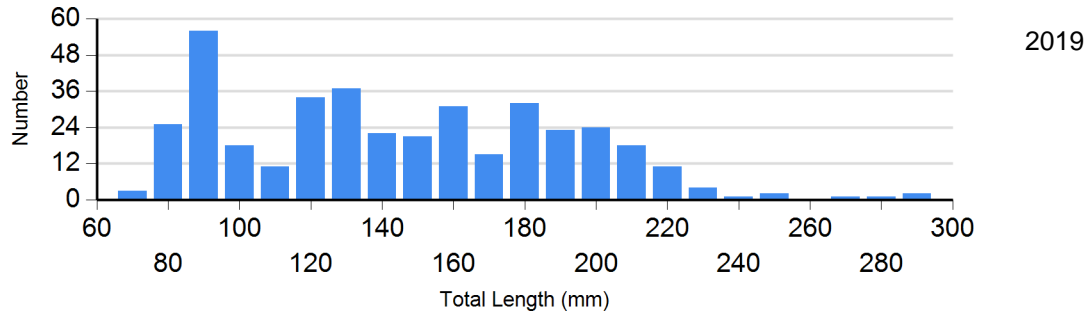
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Species: Brown Trout



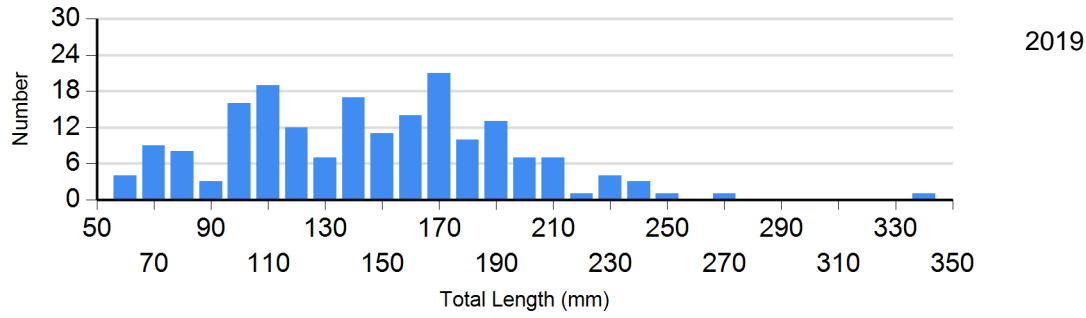
Site: 575
Species: Brown Trout



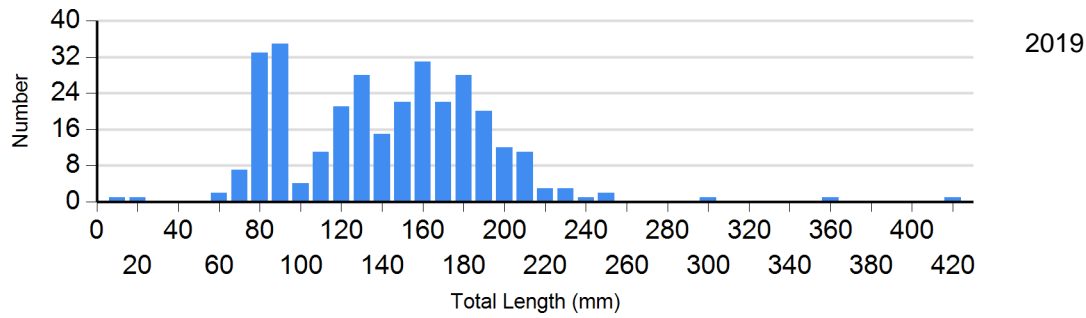
Site: 589
Species: Brown Trout



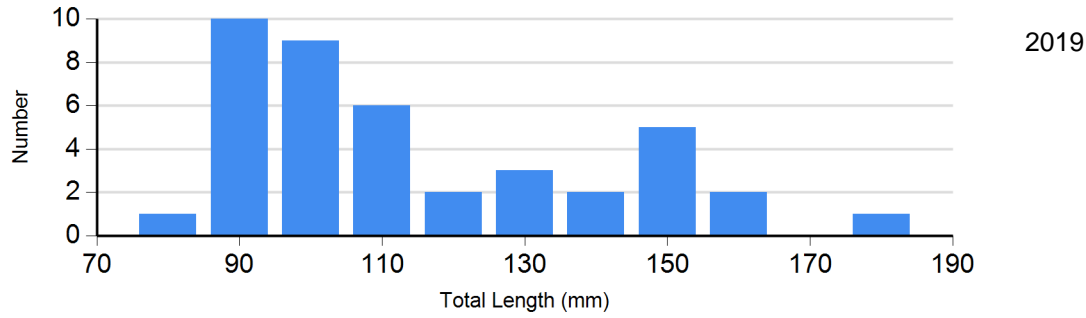
Site: 595
Species: Brown Trout



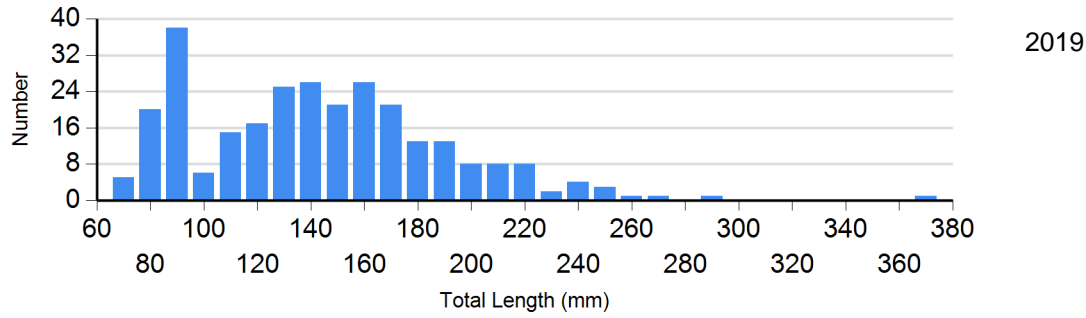
Site: 610
Species: Brown Trout



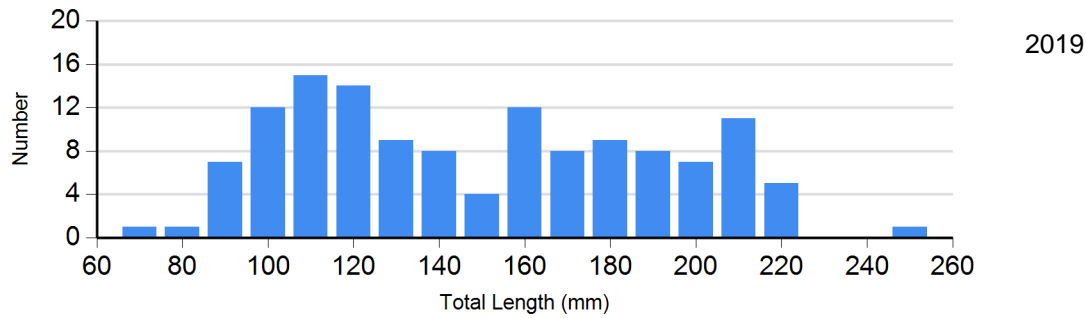
Site: 624
Species: Brook Trout



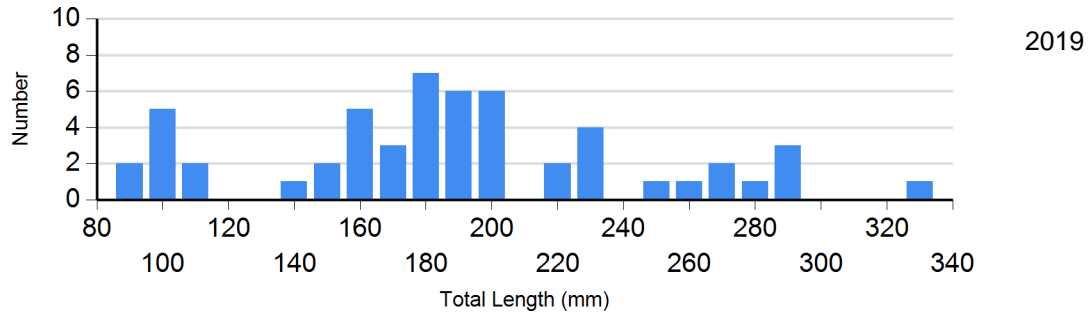
Site: 624
Species: Brown Trout



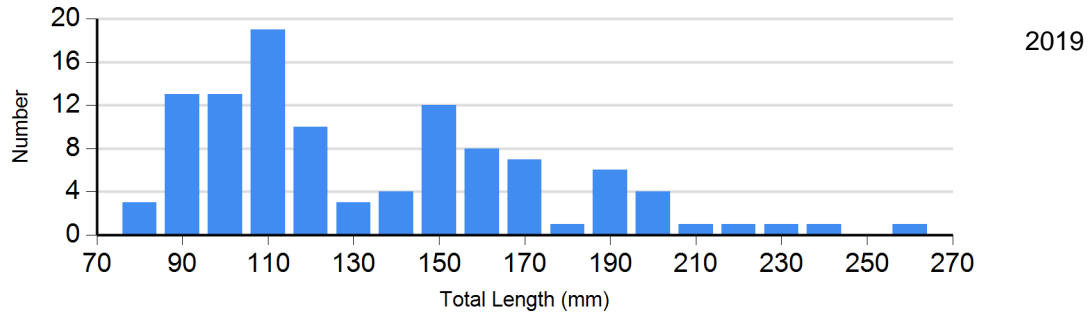
Site: 635
Species: Brook Trout



Site: 635
Species: Brown Trout



Site: 638
Species: Brook Trout



Site: 638
Species: Brown Trout

