

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Boxelder Creek, Pennington County
09-0065-00
2016

Table 1. Population and Biomass Estimates for Boxelder Creek

Site Number: 1983	Date Sampled: 06/06/2016	Conductivity (umhos/cm): 173
Site Midpoint (Latitude, Longitude): 44.15674459, -103.46614706	Site Length (m): 100	pH: 7.1
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 8.4	Water Temperature (C):
Stream Classification: BK2, BR2	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	6	6	6	6	72	5	60	29	4.09	97	159.5	63.8
Brook Trout	>=200mm	10	10	11	10	120	17	100	48	14.83	161	231.9	138.9
Brook Trout	All	16	16	17	16	191	22	160	77	19.45	257	204.8	113.9
Brown Trout	<200mm	25	25	26	25	299	21	250	121	18.49	402	171.1	69.3
Brown Trout	>=200mm	24	24	24	24	287	50	240	116	44.97	386	245.3	175.5
Brown Trout	All	49	49	50	49	586	73	490	237	65.23	788	207.4	124.7
Longnose Dace	All	163	199	229	169	2379	96	1990	964	86.04	3202	78.8	40.5
Mountain Sucker	All	2	2	6	2	24	2	20	10	1.43	32	173.5	67.0
Stone Cat	All	28	27	36	28	323	15	270	131	13.72	434	132.4	47.6
White Sucker	All	9	9	9	9	108	15	90	44	13.10	145	171.3	136.3

Site Number: 1983	Date Sampled: 07/07/2016	Conductivity (umhos/cm): 203
Site Midpoint (Latitude, Longitude): 44.15674459, -103.46614706	Site Length (m): 100	pH: 7.3
Survey Completed by: South Dakota Game, Fish and Parks	Mean Width (m): 8.1	Water Temperature (C): 22.2
Stream Classification: BK0, BR2	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	1	1	1	1	12	1	10	5	0.89	16	190.0	81.0
Brook Trout	All	1	1	1	1	12	1	10	5	0.89	16	190.0	81.0
Brown Trout	<200mm	41	47	58	41	580	36	470	235	31.86	756	146.8	61.5
Brown Trout	>=200mm	18	18	18	18	222	34	180	90	30.04	290	234.1	151.4
Brown Trout	All	59	62	68	59	765	73	620	310	65.07	998	173.4	95.2
Creek Chub	All	1	1	2	1	12	0	10	5	0.11	16	102.0	10.0
Longnose Dace	All	198	233	260	206	2877	49	2330	1165	43.66	3749	73.9	17.0
Mountain Sucker	All	3	3	4	3	37	2	30	15	1.64	48	137.0	49.5
Stone Cat	All	31	30	39	31	370	11	300	150	9.89	483	124.8	29.9
White Sucker	All	26	26	28	26	321	16	260	130	14.02	418	145.8	48.9

Site Number: 2085

Site Midpoint (Latitude, Longitude): 44.19768935, -103.52345843

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2, BR2, RB0

Date Sampled: 06/06/2016

Site Length (m): 100

Mean Width (m): 5.9

Number of Pass: 3

Conductivity (umhos/cm):

pH:

Water Temperature (C):

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	18	18	19	18	303	13	180	123	11.26	290	153.2	41.7
Brook Trout	>=200mm	10	10	10	10	168	18	100	68	16.44	161	219.8	109.5
Brook Trout	All	28	28	29	28	471	31	280	191	27.71	451	177.0	65.9
Brown Trout	<200mm	63	64	67	63	1076	51	640	436	45.27	1030	145.5	47.1
Brown Trout	>=200mm	19	19	19	19	320	55	190	129	48.93	306	253.8	171.5
Brown Trout	All	82	82	84	82	1379	108	820	559	96.30	1319	170.6	78.2

Longnose Dace	All	287	309	325	293	5197	78	3090	2105	69.61	4972	76.6	15.0
Mountain Sucker	All	33	33	34	33	555	17	330	225	15.59	531	135.3	31.5
Rainbow Trout	<200mm	2	2	3	2	34	2	20	14	1.52	32	170.0	50.5
Rainbow Trout	All	2	2	3	2	34	2	20	14	1.52	32	170.0	50.5
White Sucker	All	4	4	5	4	67	3	40	27	2.39	64	148.3	39.8

Site Number: 2207

Site Midpoint (Latitude, Longitude): 44.22882427, -103.59960513

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK1, BR3

Date Sampled: 06/06/2016

Site Length (m): 100

Mean Width (m): 3.5

Number of Pass: 3

Conductivity

(umhos/cm):

pH:

Water Temperature (C):

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	123	129	137	123	3667	124	1290	1485	110.94	2076	138.1	33.9
Brook Trout	>=200mm	23	23	24	23	654	76	230	265	68.02	370	225.3	116.5
Brook Trout	All	146	152	159	146	4320	206	1520	1750	183.85	2446	151.8	47.7
Brown Trout	<200mm	5	5	7	5	142	8	50	58	7.33	80	174.0	57.8
Brown Trout	>=200mm	2	2	3	2	57	12	20	23	10.33	32	279.0	203.5
Brown Trout	All	7	7	9	7	199	20	70	81	17.66	113	204.0	99.4
Longnose Dace	All	132	156	178	134	4434	69	1560	1796	61.37	2510	80.7	15.5
Mountain Sucker	All	3	3	3	3	85	4	30	35	3.76	48	164.7	49.3

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 Boxelder Creek, 2006-2016

Site 1983

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Aug 25, 2010	21	21-21	
	Jun 20, 2012	16	13-26	
	Jun 19, 2013	1	1-5	
	Jun 06, 2016	6	6-6	
	Jul 07, 2016	1	1-1	
Brook Trout >=200mm	Aug 25, 2010	7	7-7	BK2
	Jun 20, 2012	5	5-5	BK3

Brook Trout >=200mm	Jun 19, 2013	1	1-1	BK3
	Jul 31, 2014	2	2-2	BK3
	Jun 06, 2016	10	10-11	BK2
Brown Trout <200mm	Aug 25, 2010	18	18-18	
	Jun 20, 2012	31	30-35	
	Jun 19, 2013	4	4-4	
	Jul 31, 2014	9	9-11	
	Jun 06, 2016	25	25-26	
	Jul 07, 2016	47	41-58	
Brown Trout >=200mm	Aug 25, 2010	21	21-21	BR2
	Jun 20, 2012	16	16-16	BR2
	Jun 19, 2013	13	13-14	BR2
	Jul 31, 2014	5	5-5	BR3
	Jun 06, 2016	24	24-24	BR2
	Jul 07, 2016	18	18-18	BR2
Creek Chub	Jun 20, 2012	1	1-2	

Creek Chub	Jul 07, 2016	1	1-2
Longnose Dace	Jun 19, 2013	170	89-293
	Jul 31, 2014	69	47-107
	Jun 06, 2016	199	169-229
	Jul 07, 2016	233	206-260
Mountain Sucker	Aug 25, 2010	20	20-20
	Jun 20, 2012	16	16-17
	Jul 31, 2014	3	3-4
	Jun 06, 2016	2	2-6
	Jul 07, 2016	3	3-4
Stone Cat	Aug 25, 2010	6	6-6
	Jun 20, 2012	18	19-25
	Jun 19, 2013	6	5-13
	Jul 31, 2014	11	7-32
	Jun 06, 2016	27	28-36
	Jul 07, 2016	30	31-39

White Sucker	Aug 25, 2010	28	28-28
	Jun 20, 2012	5	5-7
	Jun 19, 2013	102	95-111
	Jul 31, 2014	75	72-81
	Jun 06, 2016	9	9-9
	Jul 07, 2016	26	26-28

Site 2085

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Jul 31, 2014	5	5-6	
	Jun 06, 2016	18	18-19	
Brook Trout >=200mm	Jul 31, 2014	1	1-1	BK3
	Jun 06, 2016	10	10-10	BK2
Brown Trout <200mm	Jul 31, 2014	26	18-49	
	Jun 06, 2016	64	63-67	
Brown Trout >=200mm	Jul 31, 2014	5	5-6	BR2
	Jun 06, 2016	19	19-19	BR2

Longnose Dace	Jun 06, 2016	309	293-325
Mountain Sucker	Jul 31, 2014	38	36-43
	Jun 06, 2016	33	33-34
Rainbow Trout <200mm	Jun 06, 2016	2	2-3
White Sucker	Jul 31, 2014	15	15-17
	Jun 06, 2016	4	4-5

Site 2207

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Aug 25, 2010	29	29-29	
	Jun 15, 2012	244	219-269	
	Jun 20, 2013	60	56-67	
	Jul 07, 2014	41	37-49	
	Jun 06, 2016	129	123-137	
Brook Trout >=200mm	Aug 25, 2010	9	9-9	BK2
	Jun 15, 2012	16	13-26	BK1
	Jun 20, 2013	5	5-6	BK2

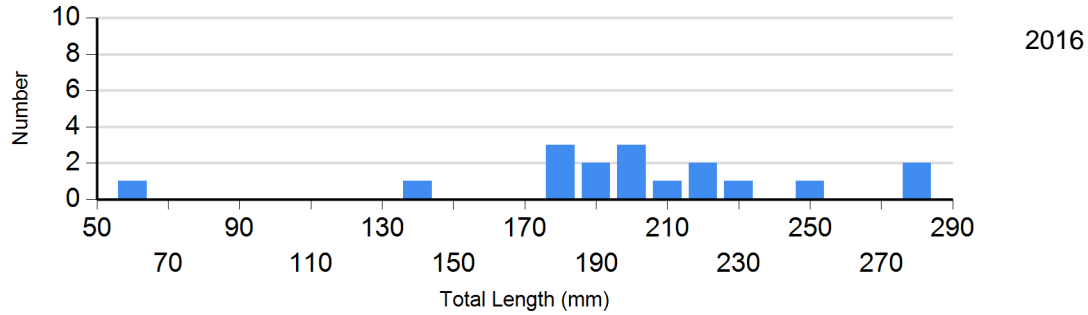
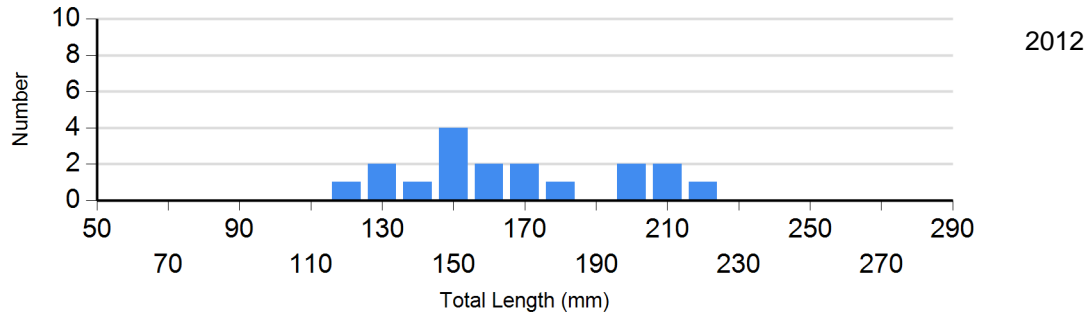
Brook Trout >=200mm	Jul 07, 2014	7	7-9	BK2
	Jun 06, 2016	23	23-24	BK1
Brown Trout <200mm	Jun 20, 2013	3	3-4	
	Jul 07, 2014	1	1-5	
	Jun 06, 2016	5	5-7	
Brown Trout >=200mm	Jun 06, 2016	2	2-3	BR3
Longnose Dace	Jun 20, 2013	149	133-165	
	Jul 07, 2014	266	226-306	
	Jun 06, 2016	156	134-178	
Mountain Sucker	Aug 25, 2010	4	4-4	
	Jun 15, 2012	6	5-13	
	Jul 07, 2014	11	11-12	
	Jun 06, 2016	3	3-3	
White Sucker	Aug 25, 2010	1	1-1	
	Jul 07, 2014	3	3-4	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

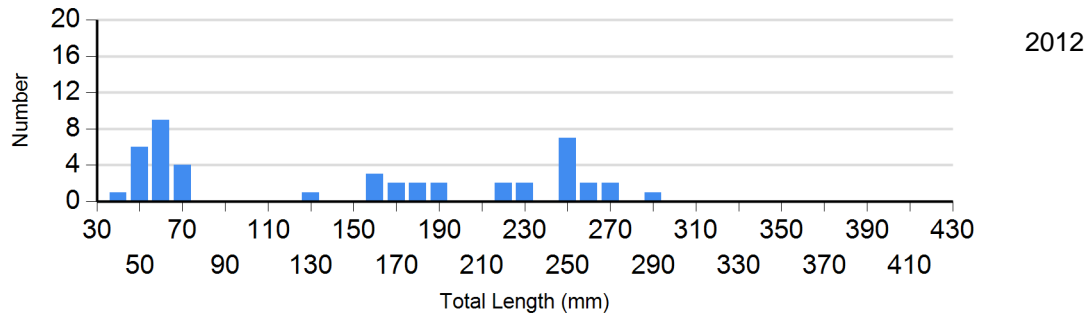
Site: 1983

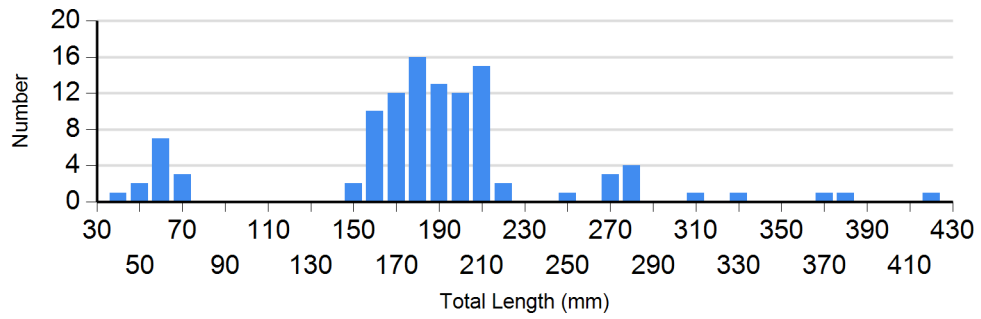
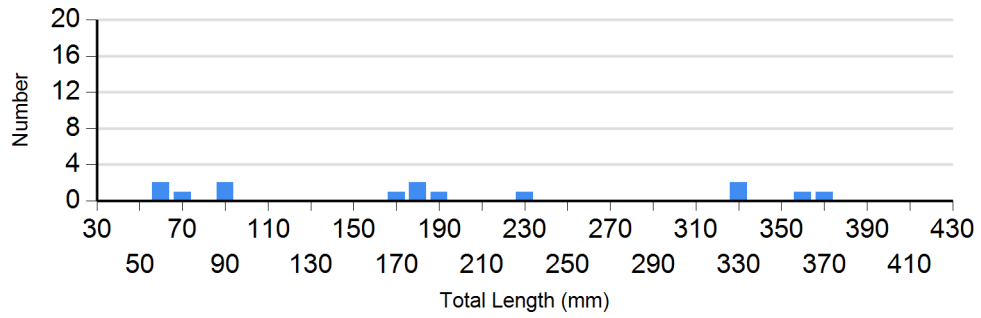
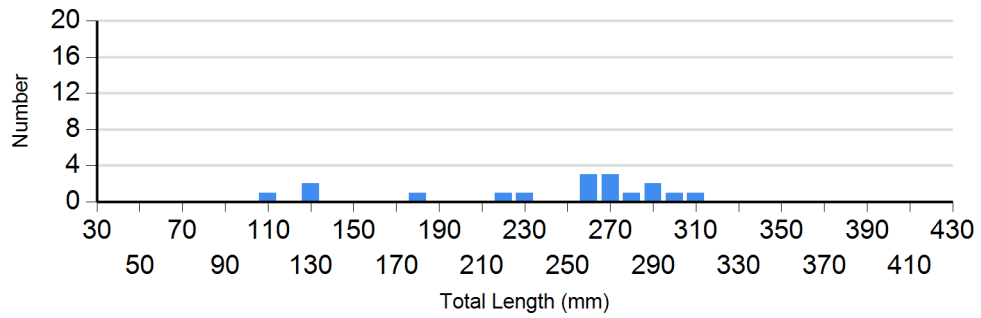
Species: Brook Trout



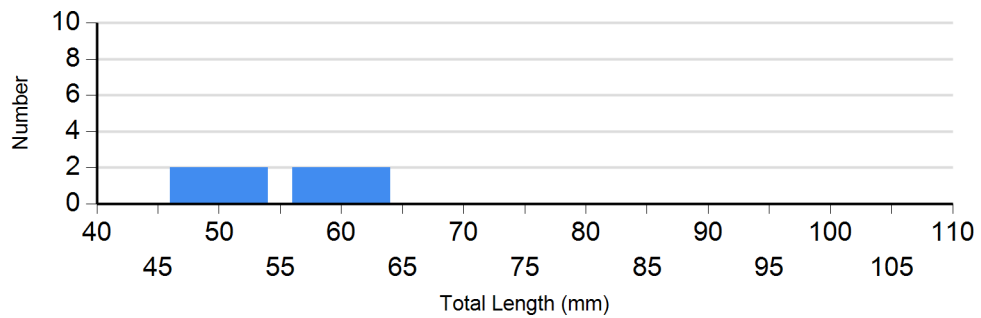
Site: 1983

Species: Brown Trout

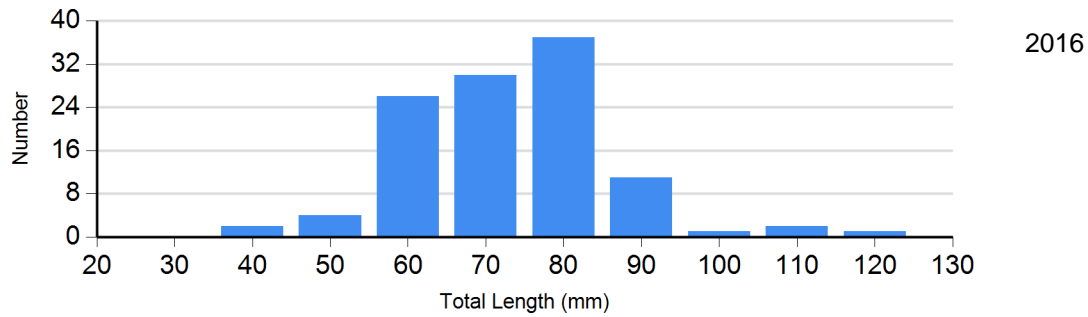
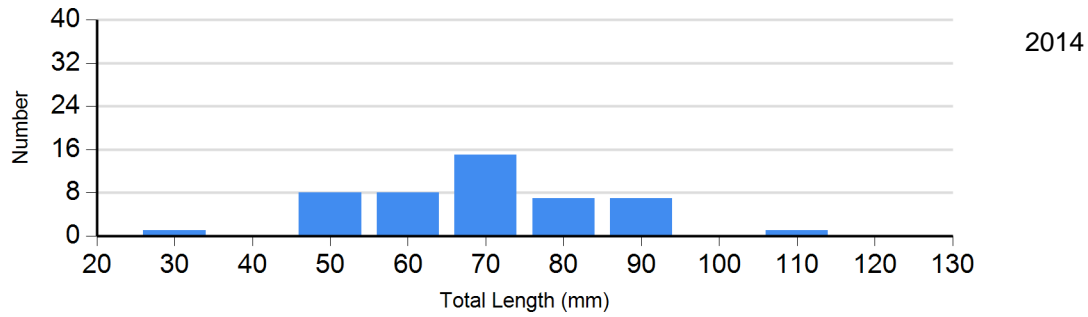
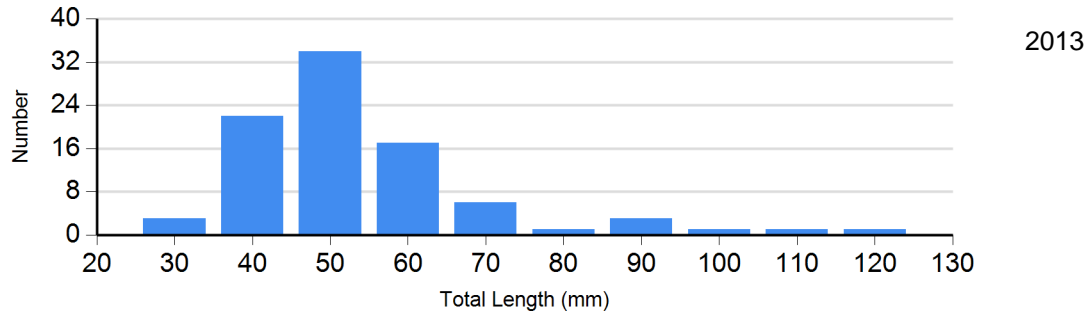




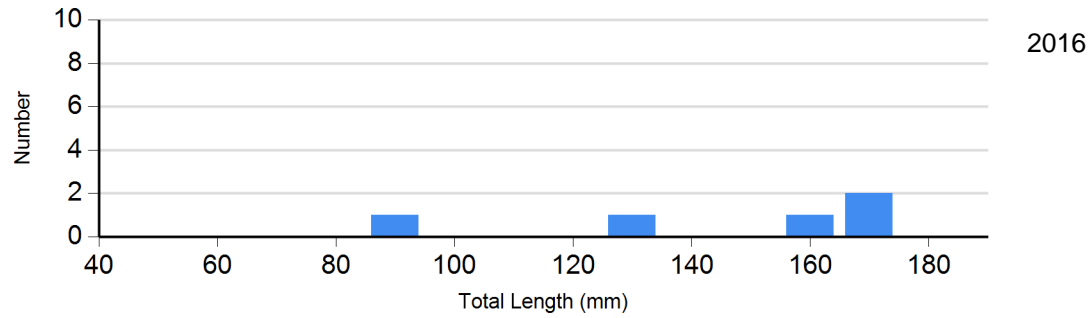
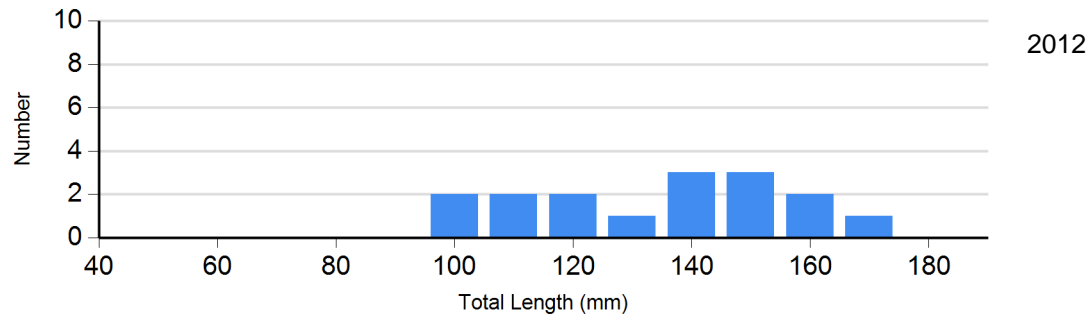
Site: 1983
Species: Fathead Minnow



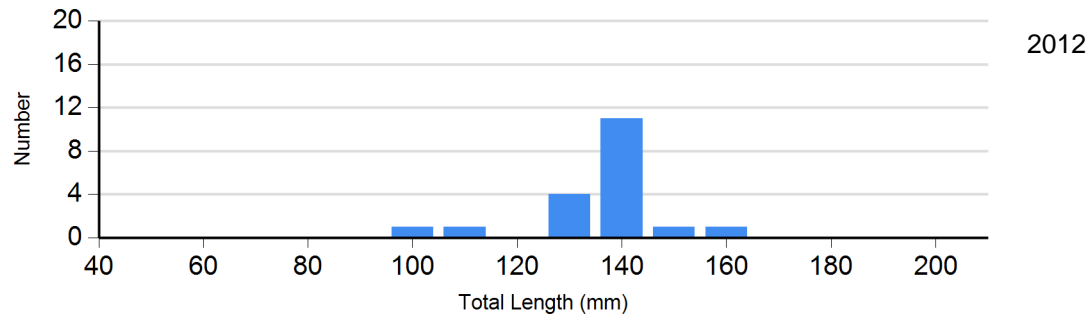
Site: 1983
Species: Longnose Dace

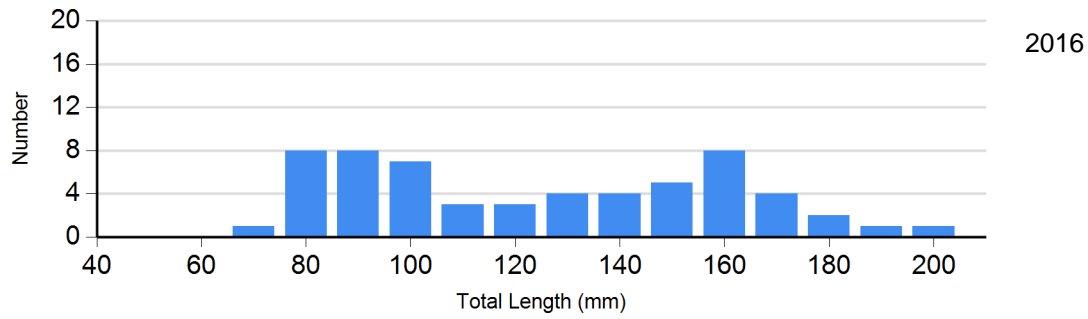
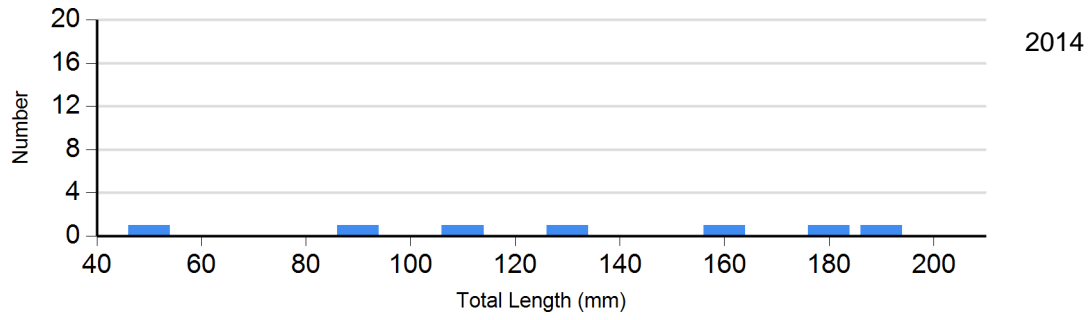
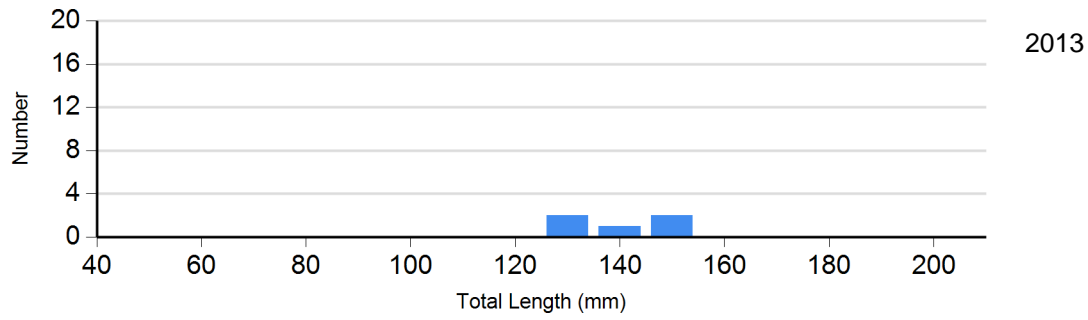


Site: 1983
Species: Mountain Sucker

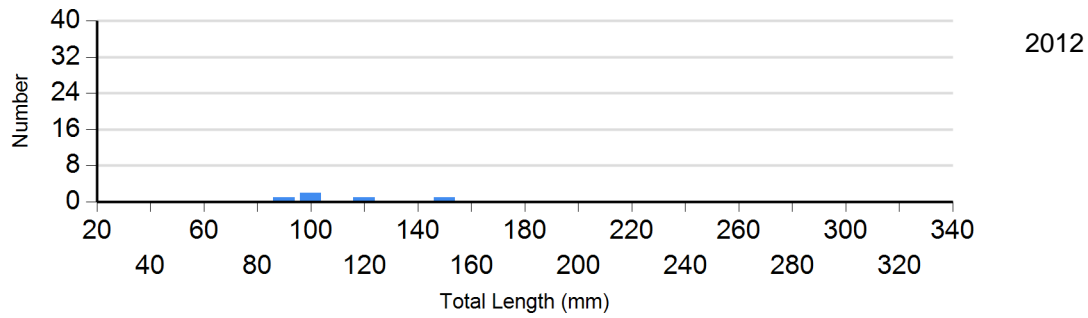


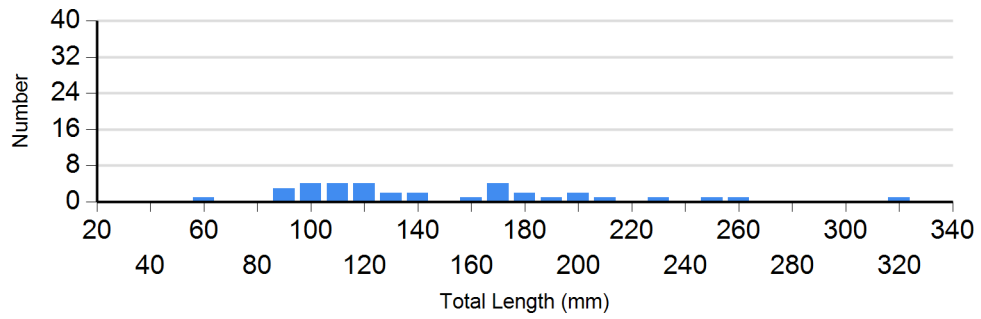
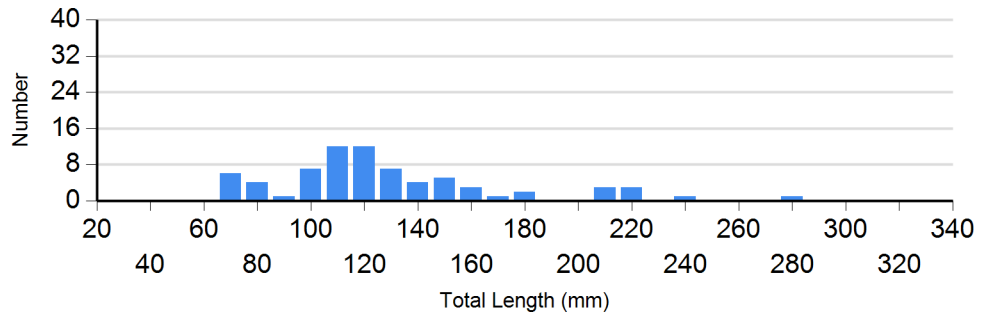
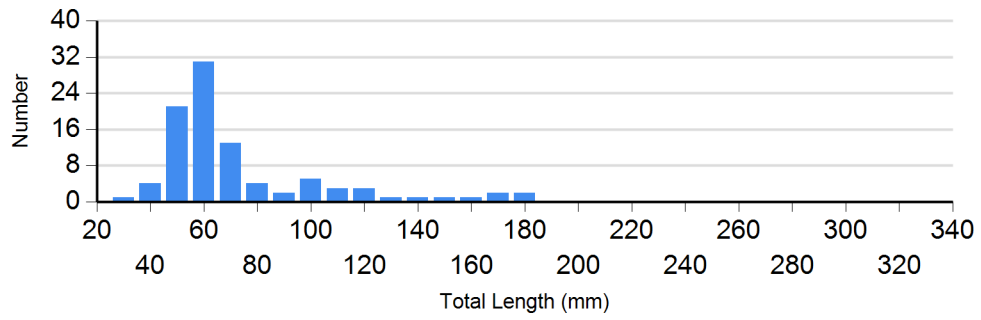
Site: 1983
Species: Stone Cat



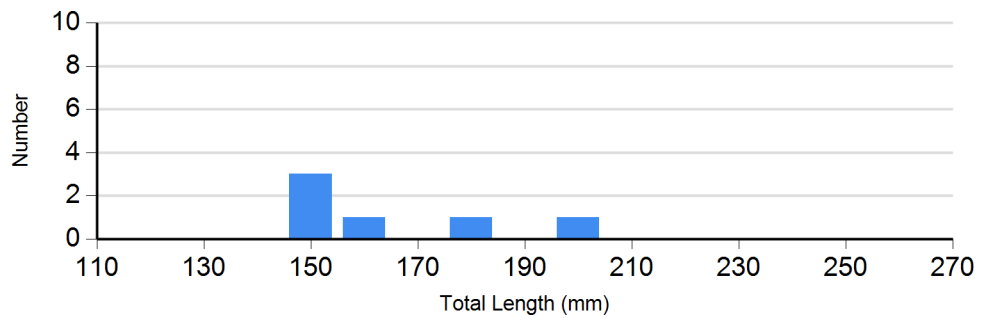


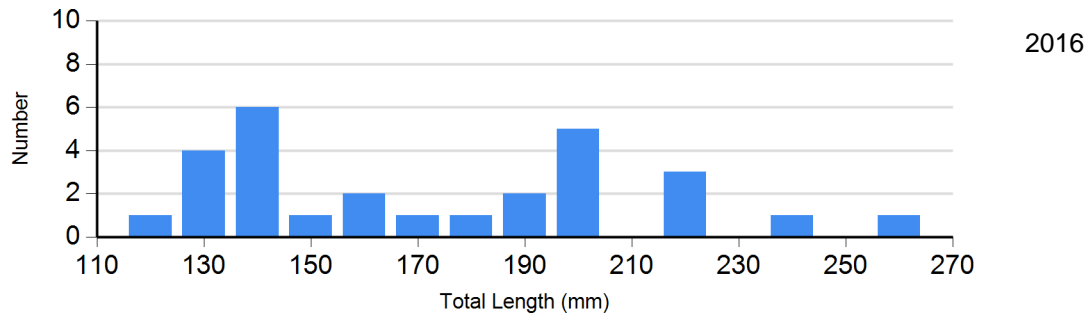
Site: 1983
Species: White Sucker



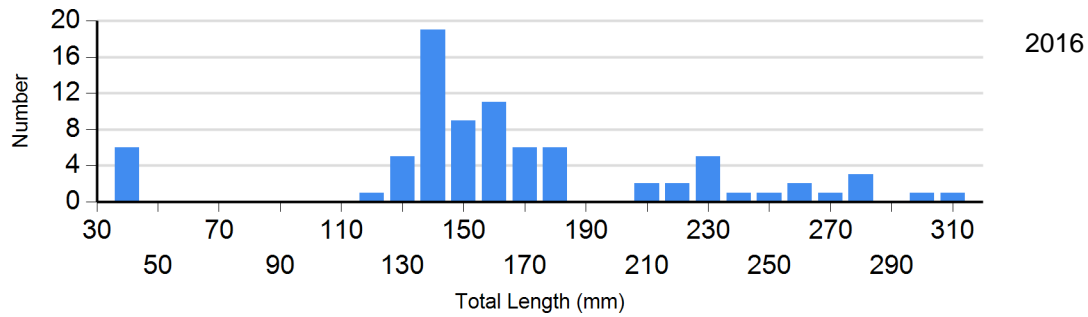
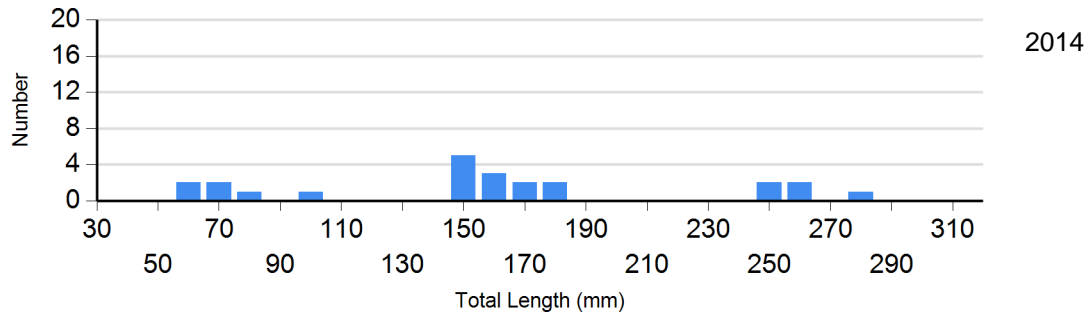


Site: 2085
Species: Brook Trout

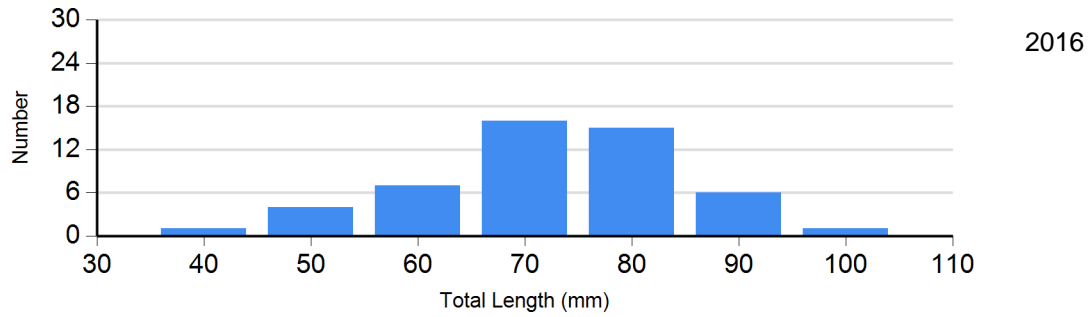
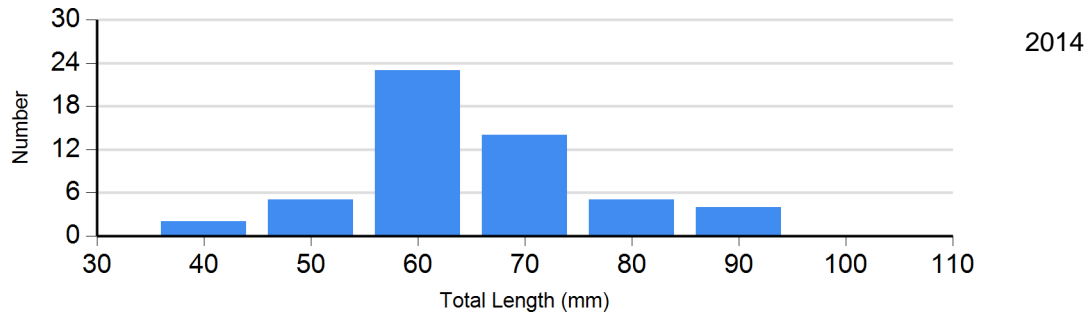




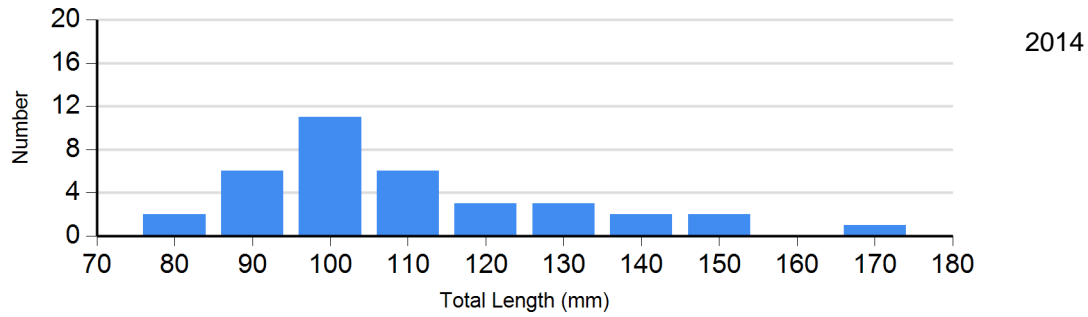
Site: 2085
Species: Brown Trout

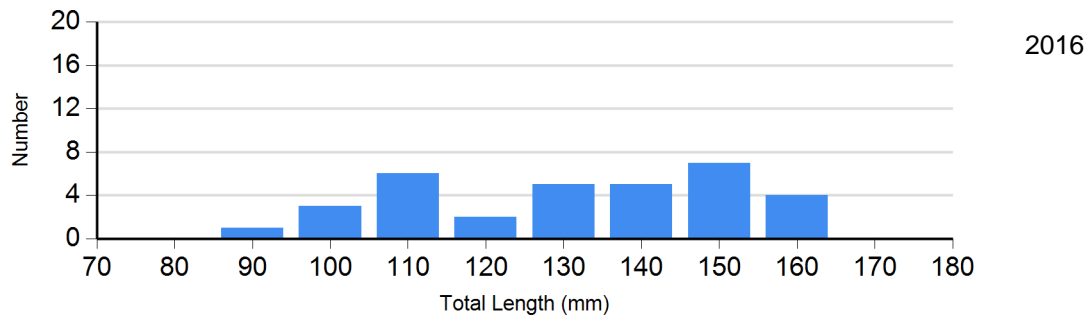


Site: 2085
Species: Longnose Dace

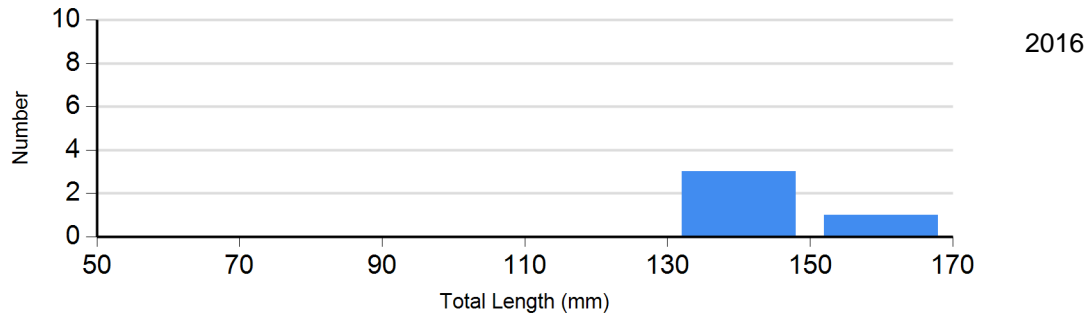
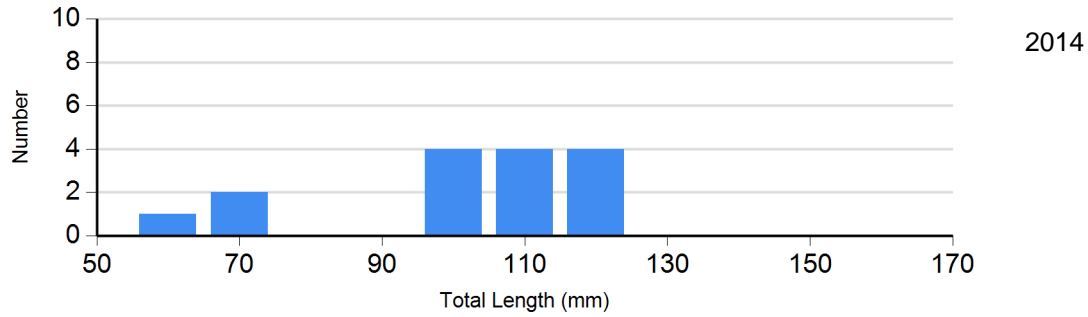


Site: 2085
Species: Mountain Sucker

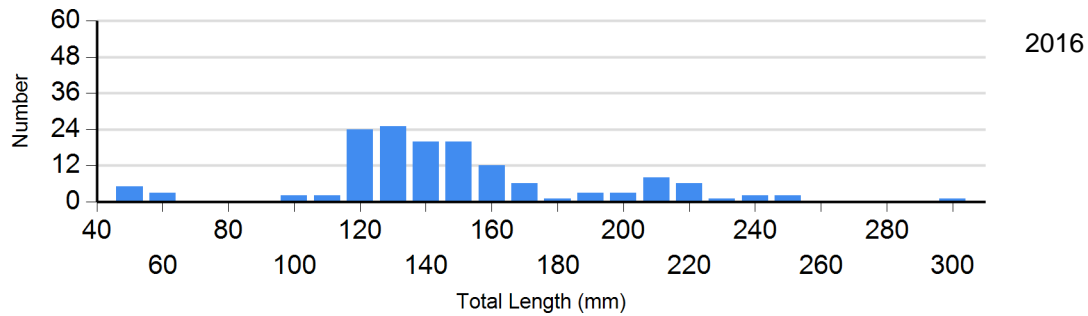
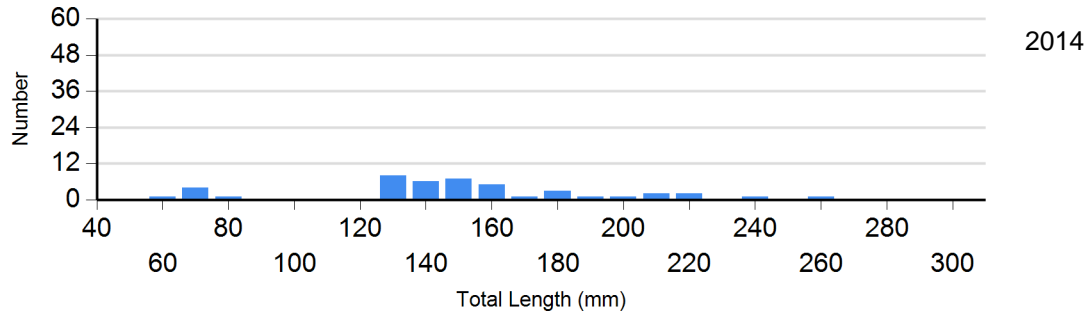
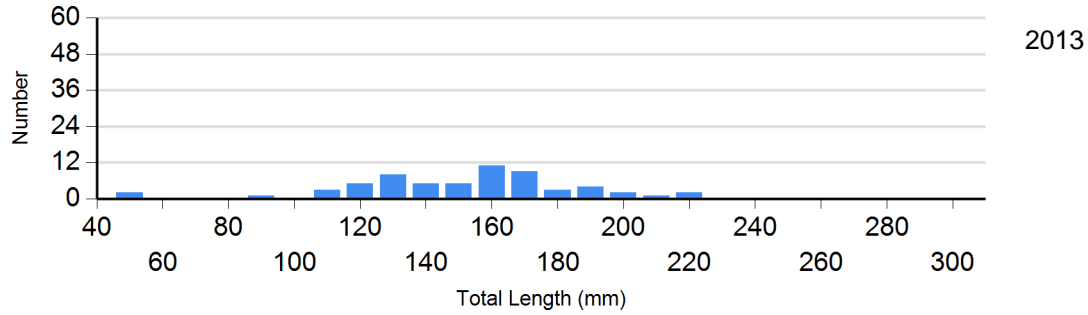
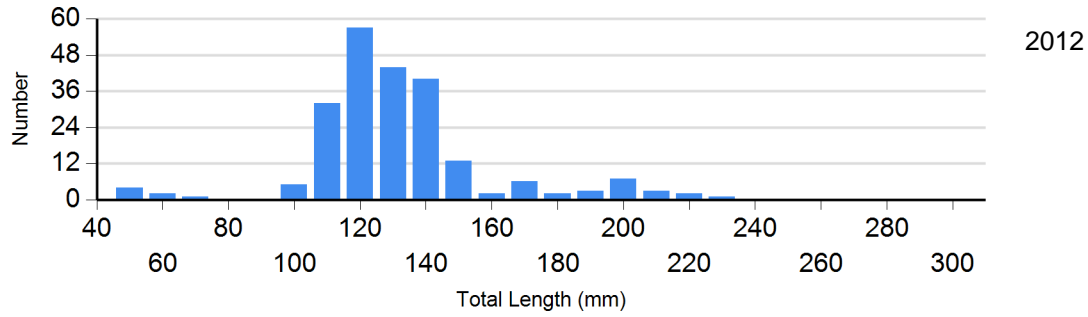




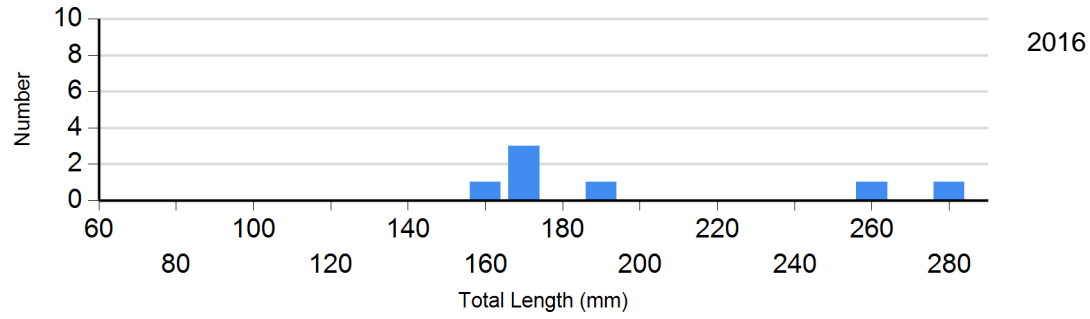
Site: 2085
Species: White Sucker



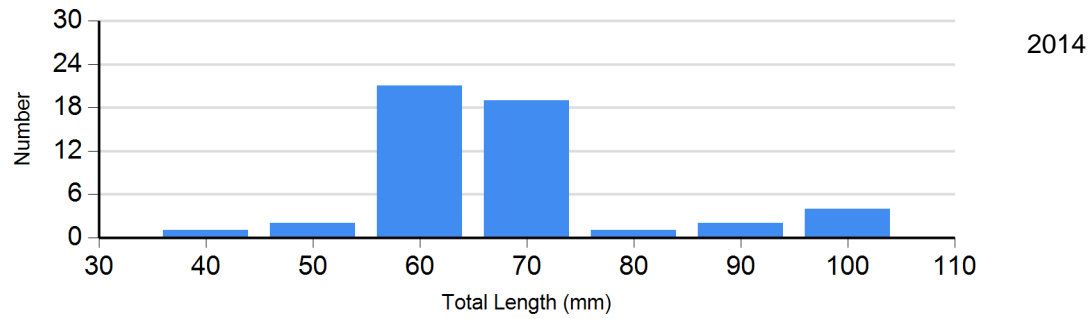
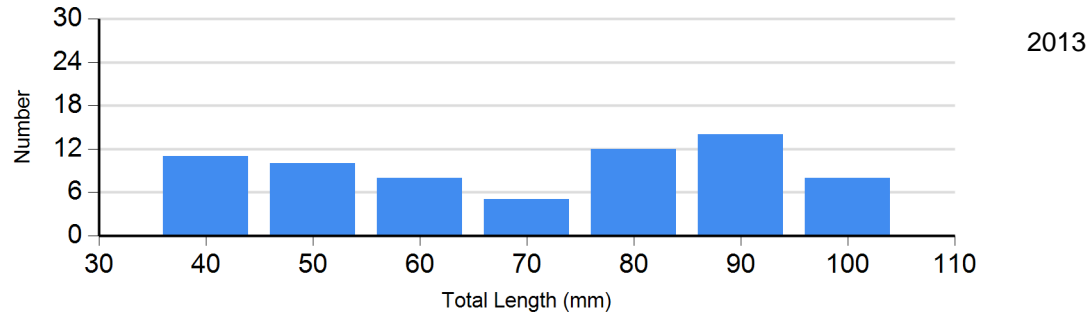
Site: 2207
Species: Brook Trout

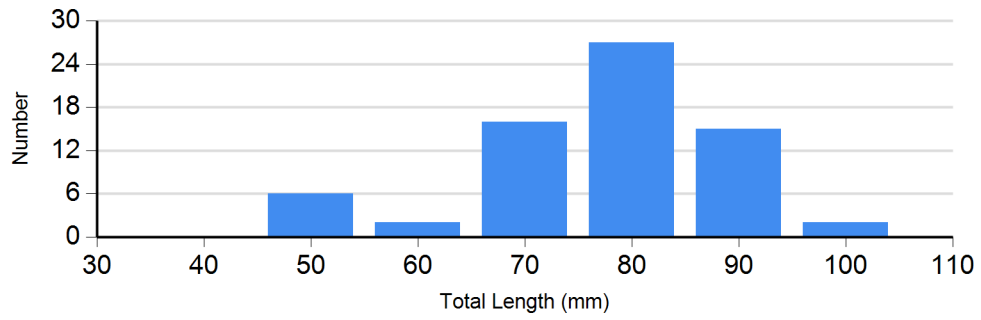


Site: 2207
Species: Brown Trout



Site: 2207
Species: Longnose Dace





Site: 2207
Species: Mountain Sucker

