

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Rapid Creek, Pennington County
02-0062-00
1990

Table 1. Population and Biomass Estimates for Rapid Creek

Site Number: 1363
Site Midpoint (Latitude, Longitude): 44.07961205, -103.20426495
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR3

Date Sampled: 10/04/1990
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 2
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)
Brown Trout	<200mm	14	15	19	14	0	0	150	0	0.00	241	102.9	13.8
Brown Trout	>=200mm	14	14	15	14	0	0	140	0	0.00	225	249.3	178.2
Brown Trout	All	28	29	33	28	0	0	290	0	0.00	467	176.1	96.0
Green Sunfish	All	6	7	14	6	0	0	70	0	0.00	113	108.3	28.6
Hatchery Brown Trout	>=200mm	11	11	13	11	0	0	110	0	0.00	177	276.4	253.2
Hatchery Brown Trout	All	11	11	13	11	0	0	110	0	0.00	177	276.4	253.2
Largemouth Bass	All	1	1	1	1	0	0	10	0	0.00	16	70.0	7.0
Longnose Dace	All	8	7	12	8	0	0	70	0	0.00	113	80.0	4.0
Mountain Sucker	All	20	20	22	20	0	0	200	0	0.00	322	168.0	77.5
Rock Bass	All	6	6	7	6	0	0	60	0	0.00	97	158.3	88.7
White Sucker	All	29	40	66	29	0	0	400	0	0.00	644	222.1	201.9

Site Number: 1383
Site Midpoint (Latitude, Longitude): 44.08487597, -103.22694435
Survey Completed by: South Dakota Game, Fish and Parks

Date Sampled: 10/05/1990
Site Length (m): 100
Mean Width (m): 0.0
Conductivity (umhos/cm):
pH:

Stream Classification: BR3, RB0

Number of Pass: 2

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)
Brown Trout	<200mm	49	52	58	49	0	0	520	0	0.00	837	125.3	22.6
Brown Trout	>=200mm	99	99	101	99	0	0	990	0	0.00	1593	260.0	190.6
Brown Trout	All	148	151	156	148	0	0	1510	0	0.00	2430	215.4	140.7
Green Sunfish	All	10	9	12	10	0	0	90	0	0.00	145	110.0	44.7
Largemouth Bass	All	6	5	7	6	0	0	50	0	0.00	80	135.0	37.5
Mountain Sucker	All	25	25	26	25	0	0	250	0	0.00	402	184.0	105.0
Rainbow Trout	<200mm	1	1	1	1	0	0	10	0	0.00	16	170.0	30.0
Rainbow Trout	All	1	1	1	1	0	0	10	0	0.00	16	170.0	30.0
White Sucker	All	145	149	155	145	0	0	1490	0	0.00	2397	277.1	342.8
Yellow Perch	All	1	1	1	1	0	0	10	0	0.00	16	140.0	40.0

Site Number: 1393

Site Midpoint (Latitude, Longitude): 44.08551436, -103.23872222

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR3

Date Sampled: 10/10/1990

Site Length (m): 100

Mean Width (m): 0.0

Number of Pass: 2

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)
Brown Trout	<200mm	35	38	45	35	0	0	380	0	0.00	611	136.9	39.4
Brown Trout	>=200mm	134	136	140	134	0	0	1360	0	0.00	2188	238.0	161.2
Brown Trout	All	169	174	181	169	0	0	1740	0	0.00	2800	217.0	149.3
Hatchery Brown Trout	>=200mm	3	3	3	3	0	0	30	0	0.00	48	300.0	294.3

Hatchery Brown Trout	All	3	3	3	3	0	0	30	0	0.00	48	300.0	294.3
Rock Bass	All	1	1	1	1	0	0	10	0	0.00	16	140.0	93.0

Site Number: 1412
Site Midpoint (Latitude, Longitude): 44.07907606, -103.25491933
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR3

Date Sampled: 10/10/1990
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 2
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)
Brown Trout	<200mm	76	87	102	76	0	0	870	0	0.00	1400	121.7	40.3
Brown Trout	>=200mm	175	176	179	175	0	0	1760	0	0.00	2832	238.5	164.5
Brown Trout	All	253	260	268	253	0	0	2600	0	0.00	4183	203.1	156.6
Green Sunfish	All	1	1	1	1	0	0	10	0	0.00	16	150.0	56.0
Largemouth Bass	All	1	1	1	1	0	0	10	0	0.00	16	140.0	40.0
Rock Bass	All	3	3	3	3	0	0	30	0	0.00	48	136.7	62.0

Site Number: 1434
Site Midpoint (Latitude, Longitude): 44.06752736, -103.27112322
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR3

Date Sampled: 10/04/1990
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 2
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)
Brown Trout	<200mm	215	273	319	227	0	0	2730	0	0.00	4393	116.0	20.6
Brown Trout	>=200mm	240	249	258	240	0	0	2490	0	0.00	4006	242.5	187.9
Brown Trout	All	455	505	533	477	0	0	5050	0	0.00	8125	182.7	134.3

White Sucker All 141 143 147 141 0 0 1430 0 0.00 2301 292.8 532.3

Site Number: 1656
Site Midpoint (Latitude, Longitude): 44.05452135, -103.40589571
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR3

Date Sampled: 09/10/1990
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 2
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)
Brown Trout	<200mm	331	367	391	343	0	0	3670	0	0.00	5905	124.6	41.2
Brown Trout	>=200mm	73	74	77	73	0	0	740	0	0.00	1191	230.1	125.8
Brown Trout	All	405	438	459	417	0	0	4380	0	0.00	7047	143.7	68.3

Site Number: 1833
Site Midpoint (Latitude, Longitude): 44.07611720, -103.47551527
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR3

Date Sampled: 08/03/1990
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 2
Conductivity (umhos/cm): 250
pH:
Water Temperature (C): 11.0
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)
Brown Trout	<200mm	85	90	98	85	0	0	900	0	0.00	1448	136.9	36.1
Brown Trout	>=200mm	39	40	43	39	0	0	400	0	0.00	644	255.1	228.6
Brown Trout	All	124	131	140	124	0	0	1310	0	0.00	2108	174.1	124.5

Site Number: 1843
Site Midpoint (Latitude, Longitude): 44.07203156, -103.47488319
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BK3, BR3

Date Sampled: 08/03/1990
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 2
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	14	20	41	14	0	0	200	0	0.00	322	149.3	33.3
Brook Trout	>=200mm	2	2	2	2	0	0	20	0	0.00	32	210.0	121.0
Brook Trout	All	16	20	33	16	0	0	200	0	0.00	322	156.9	44.3
Brown Trout	<200mm	22	23	27	22	0	0	230	0	0.00	370	140.5	36.7
Brown Trout	>=200mm	17	24	46	17	0	0	240	0	0.00	386	281.2	249.1
Brown Trout	All	39	46	60	39	0	0	460	0	0.00	740	201.8	129.3

Site Number: 1952
Site Midpoint (Latitude, Longitude): 44.08822830, -103.57398811
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR3

Date Sampled: 08/02/1990
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 1
Conductivity (umhos/cm): 312
pH:
Water Temperature (C): 17.0
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)
Brown Trout	<200mm	65	65	65	65	0	0	650	0	0.00	1046	122.6	38.1
Brown Trout	>=200mm	11	11	11	11	0	0	110	0	0.00	177	233.6	134.0
Brown Trout	All	76	76	76	76	0	0	760	0	0.00	1223	138.7	56.6
Cutthroat Trout	>=200mm	1	1	1	1	0	0	10	0	0.00	16	240.0	110.0
Cutthroat Trout	All	1	1	1	1	0	0	10	0	0.00	16	240.0	110.0

Site Number: 2007
Site Midpoint (Latitude, Longitude): 44.08387011, -103.60810831
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR3

Date Sampled: 08/02/1990
Site Length (m): 100
Mean Width (m): 0.0
Number of Pass: 2
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)
Brown Trout	<200mm	148	180	210	150	0	0	1800	0	0.00	2896	134.4	40.1
Brown Trout	>=200mm	37	37	39	37	0	0	370	0	0.00	595	229.5	129.4
Brown Trout	All	185	212	235	189	0	0	2120	0	0.00	3411	153.4	70.5
Cutthroat Trout	<200mm	1	1	4	1	0	0	10	0	0.00	16	180.0	180.0
Cutthroat Trout	>=200mm	3	3	3	3	0	0	30	0	0.00	48	236.7	171.0
Cutthroat Trout	All	4	4	5	4	0	0	40	0	0.00	64	222.5	174.0

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 Rapid Creek, 1980-1990

Site 1363

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 04, 1990	15	14-19	
Brown Trout >=200mm	Oct 04, 1990	14	14-15	BR3
Green Sunfish	Oct 04, 1990	7	6-14	
Hatchery Brown Trout >=200mm	Oct 04, 1990	11	11-13	
Largemouth Bass	Oct 04, 1990	1	1-1	
Longnose Dace	Oct 04, 1990	7	8-12	
Mountain Sucker	Oct 04, 1990	20	20-22	

Rock Bass	Oct 04, 1990	6	6-7
White Sucker	Oct 04, 1990	40	29-66

Site 1383

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Sep 29, 1988	114	100-131	
	Oct 05, 1990	52	49-58	
Brown Trout >=200mm	Sep 29, 1988	142	128-157	BR3
	Oct 05, 1990	99	99-101	BR3
Green Sunfish	Sep 29, 1988	3	4-4	
	Oct 05, 1990	9	10-12	
Largemouth Bass	Sep 29, 1988	2	2-4	
	Oct 05, 1990	5	6-7	
Mountain Sucker	Sep 29, 1988	81	76-89	
	Oct 05, 1990	25	25-26	
Rainbow Trout <200mm	Oct 05, 1990	1	1-1	
Rock Bass	Sep 29, 1988	2	2-2	

White Sucker	Sep 29, 1988	140	107-178
	Oct 05, 1990	149	145-155
Yellow Perch	Sep 29, 1988	1	1-4
	Oct 05, 1990	1	1-1

Site 1393

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 06, 1988	97	92-105	
	Oct 10, 1990	38	35-45	
Brown Trout >=200mm	Oct 06, 1988	180	175-187	BR3
	Oct 10, 1990	136	134-140	BR3
Hatchery Brown Trout >=200mm	Oct 06, 1988	3	3-3	
	Oct 10, 1990	3	3-3	
Mountain Sucker	Oct 06, 1988	49	32-89	
Rainbow Trout <200mm	Oct 06, 1988	1	1-1	
Rock Bass	Oct 10, 1990	1	1-1	
White Sucker	Oct 06, 1988	34	34-35	

Site 1412

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 06, 1988	195	172-218	
	Oct 10, 1990	87	76-102	
Brown Trout >=200mm	Oct 06, 1988	140	136-146	BR3
	Oct 10, 1990	176	175-179	BR3
Green Sunfish	Oct 10, 1990	1	1-1	
Largemouth Bass	Oct 10, 1990	1	1-1	
Mountain Sucker	Oct 06, 1988	19	18-23	
Rainbow Trout <200mm	Oct 06, 1988	2	2-4	
Rock Bass	Oct 10, 1990	3	3-3	
White Sucker	Oct 06, 1988	36	36-37	

Site 1434

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 04, 1990	273	227-319	
Brown Trout >=200mm	Oct 04, 1990	249	240-258	BR3
White Sucker	Oct 04, 1990	143	141-147	

Site 1656

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Sep 10, 1990	367	343-391	
Brown Trout >=200mm	Sep 10, 1990	74	73-77	BR3

Site 1833

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 07, 1988	8	7-14	
Brown Trout <200mm	Oct 07, 1988	116	86-155	
	Aug 03, 1990	90	85-98	
Brown Trout >=200mm	Oct 07, 1988	59	56-65	BR3
	Aug 03, 1990	40	39-43	BR3
Hatchery Brown Trout >=200mm	Oct 07, 1988	2	2-2	

Site 1843

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 07, 1988	12	12-12	
	Aug 03, 1990	20	14-41	
Brook Trout >=200mm	Oct 07, 1988	9	9-9	BK3
	Aug 03, 1990	2	2-2	BK3

Brown Trout <200mm	Oct 07, 1988	28	28-28	
	Aug 03, 1990	23	22-27	
Brown Trout >=200mm	Oct 07, 1988	28	28-28	BR3
	Aug 03, 1990	24	17-46	BR3
Hatchery Brown Trout >=200mm	Oct 07, 1988	19	19-19	

Site 1952

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Aug 02, 1990	65	65-65	
Brown Trout >=200mm	Aug 02, 1990	11	11-11	BR3
Cutthroat Trout >=200mm	Aug 02, 1990	1	1-1	

Site 2007

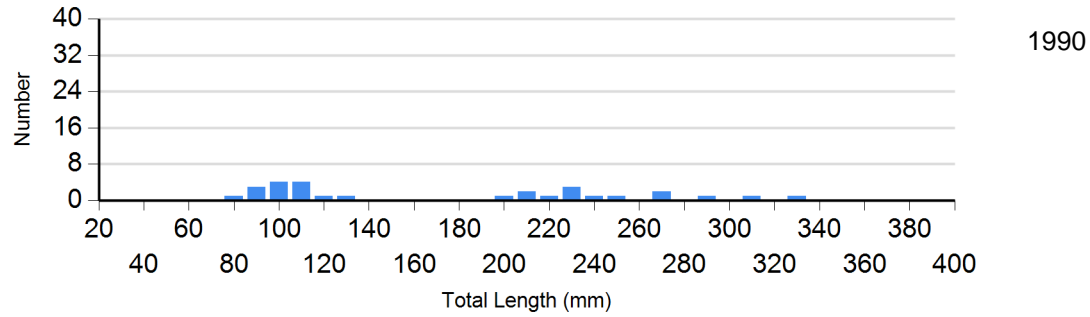
Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Aug 02, 1990	180	150-210	
Brown Trout >=200mm	Aug 02, 1990	37	37-39	BR3
Cutthroat Trout <200mm	Aug 02, 1990	1	1-4	
Cutthroat Trout >=200mm	Aug 02, 1990	3	3-3	

Length Frequency Distribution

Length frequency histogram of species sampled by year.

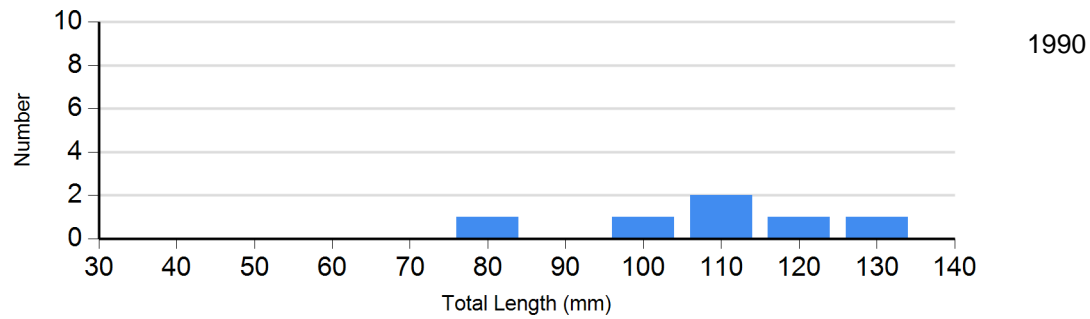
Site: 1363

Species: Brown Trout



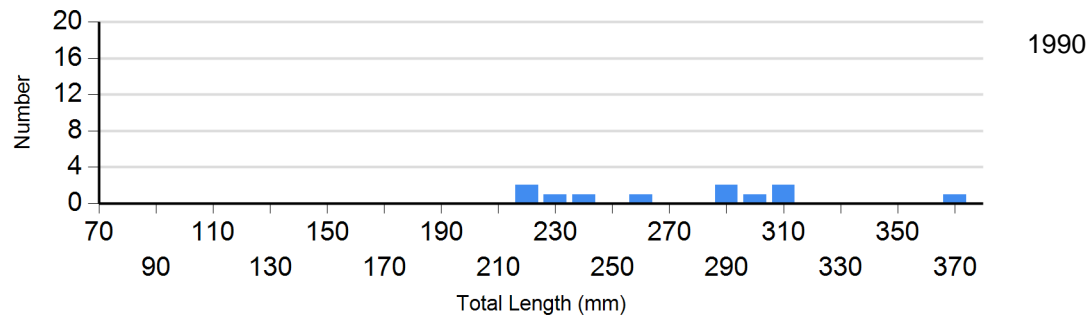
Site: 1363

Species: Green Sunfish

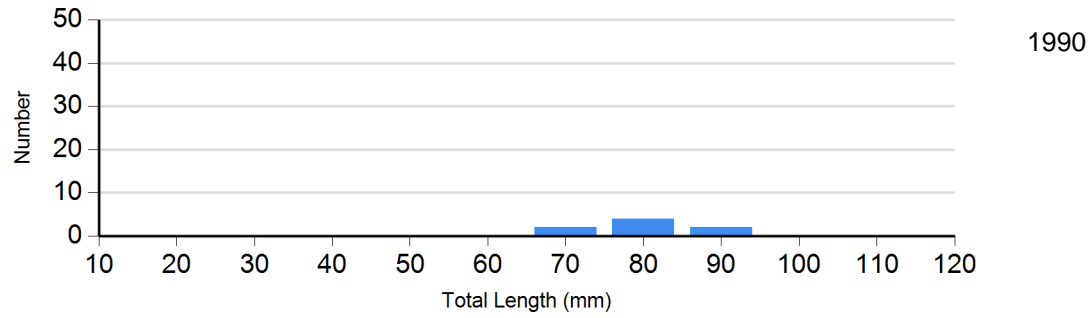


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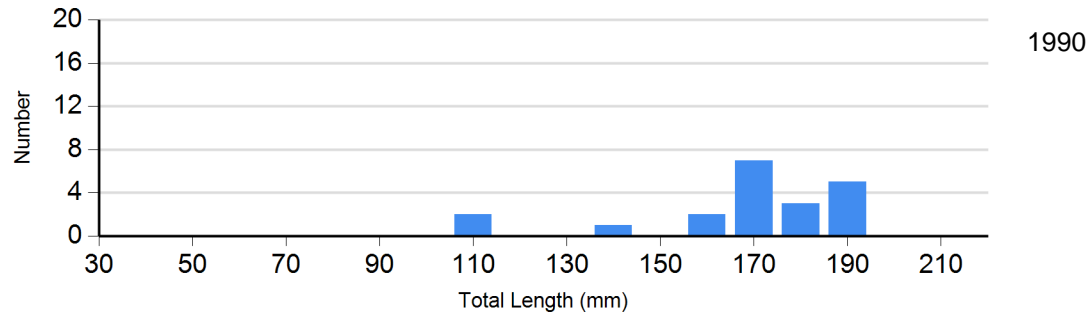
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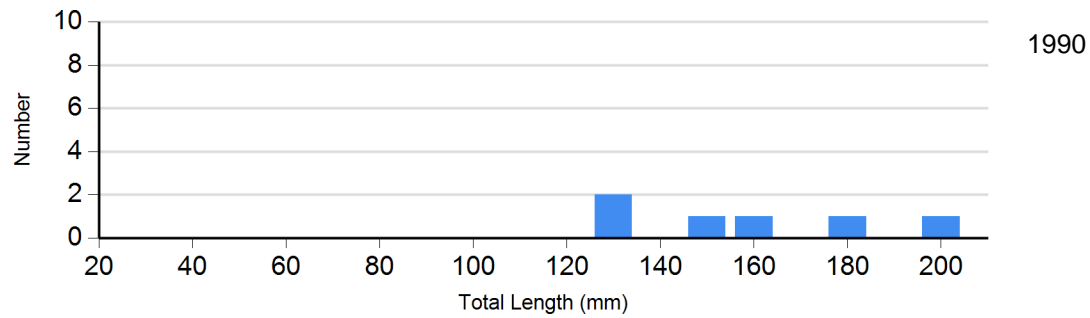
Site: 1363
Species: Longnose Dace



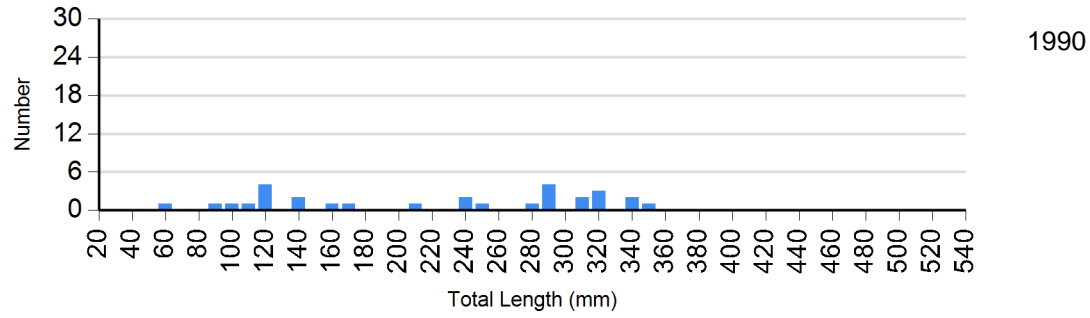
Site: 1363
Species: Mountain Sucker



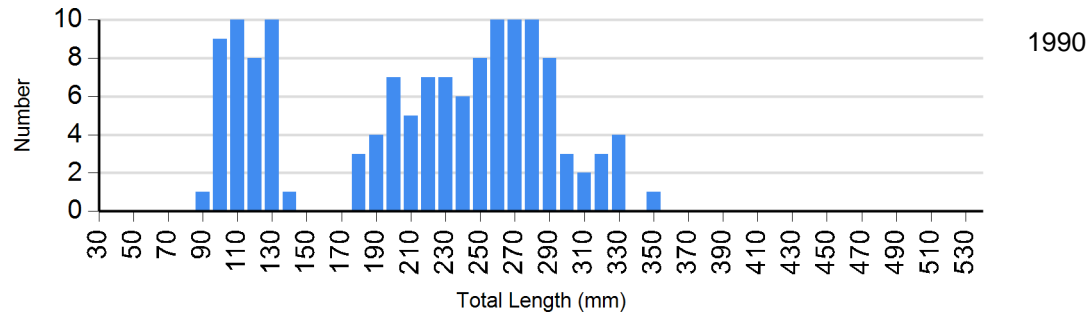
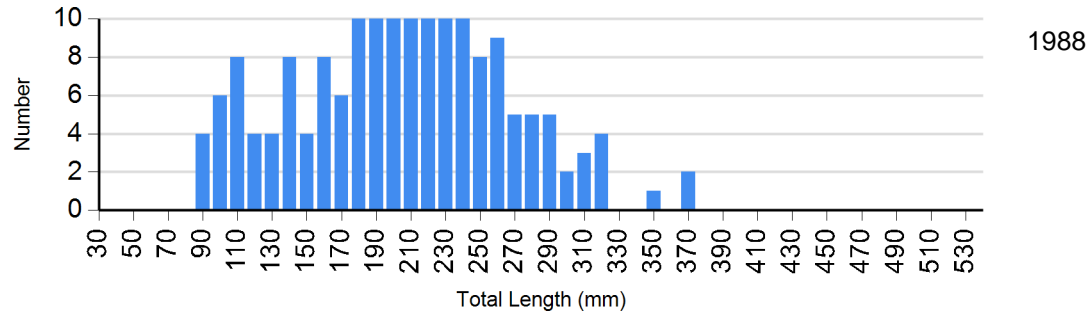
Site: 1363
Species: Rock Bass



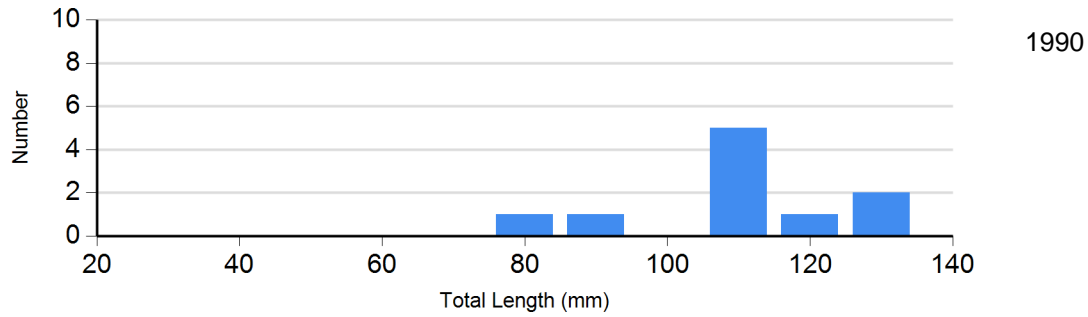
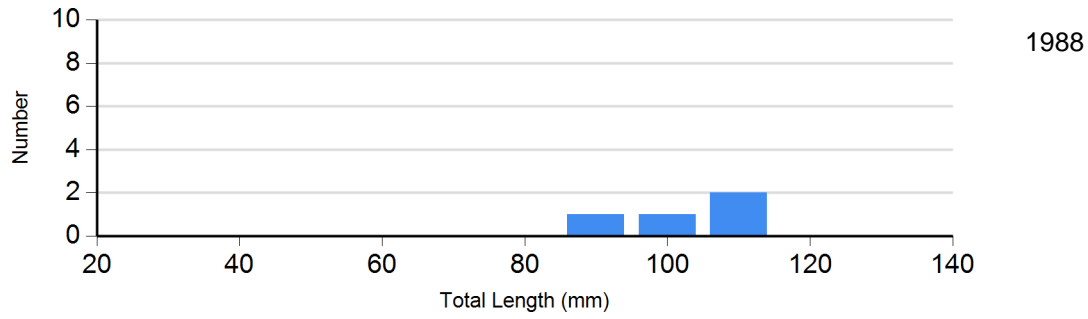
Site: 1363
Species: White Sucker



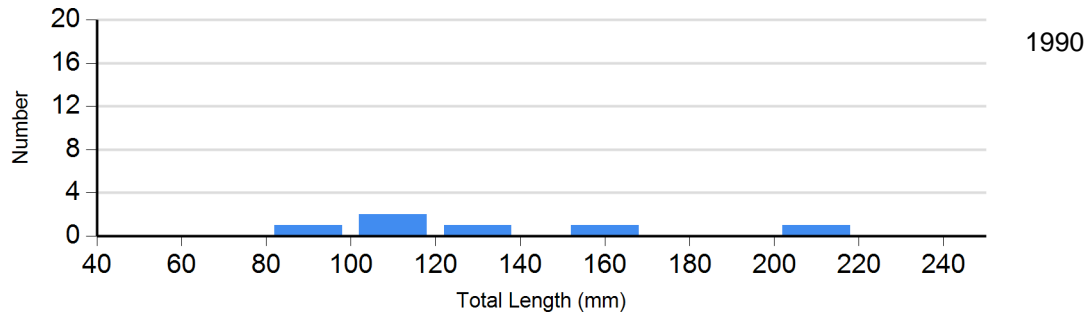
Site: 1383
Species: Brown Trout



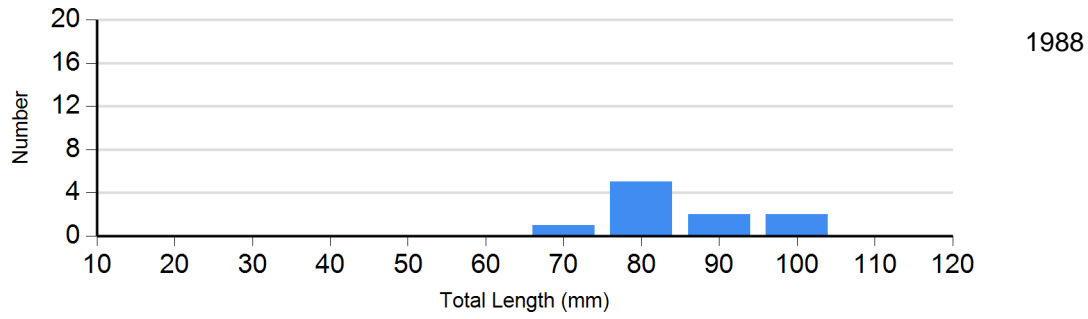
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Species: Green Sunfish



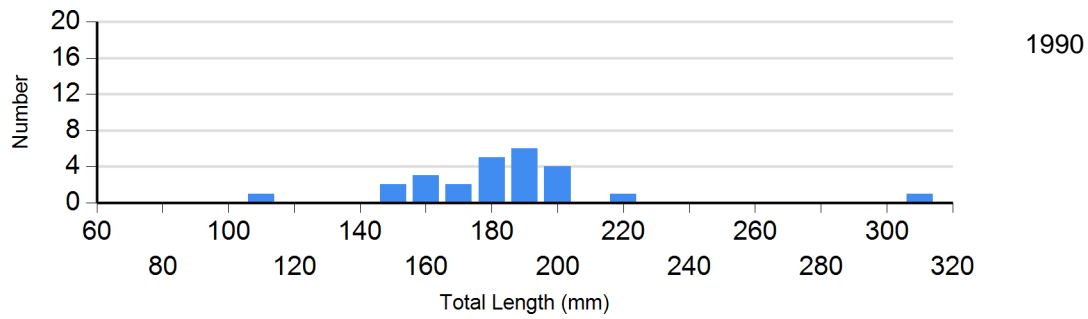
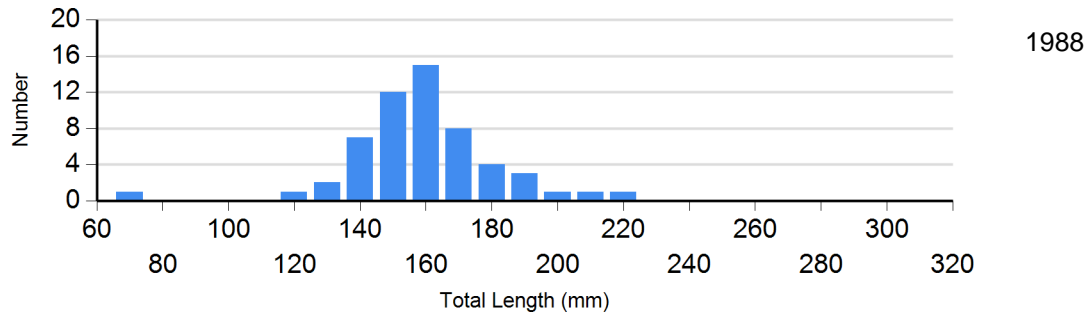
Site: 1383
Species: Largemouth Bass



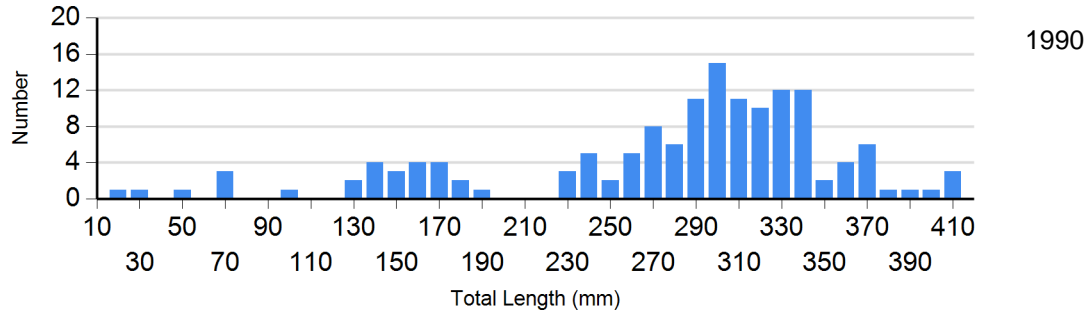
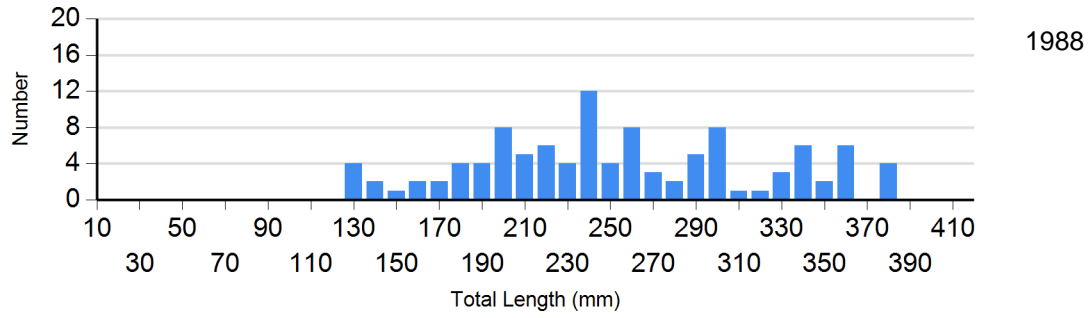
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Species: Longnose Dace



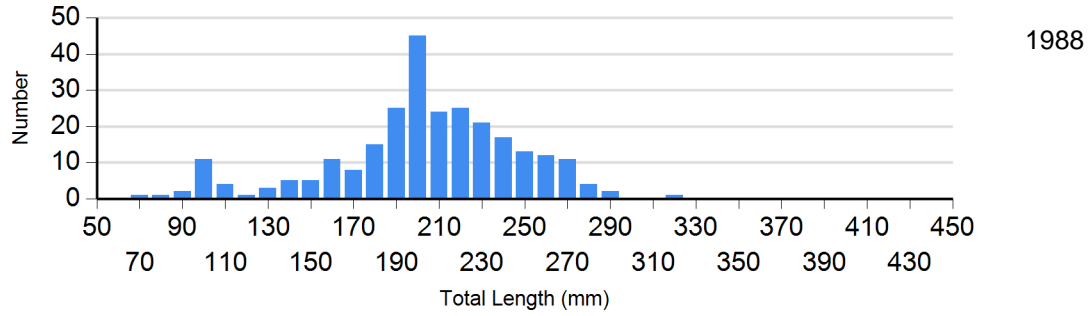
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Species: Mountain Sucker

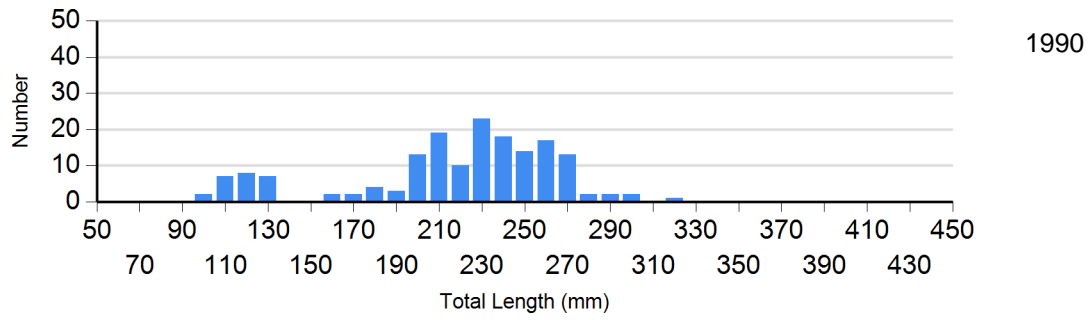


Site: 1383
Species: White Sucker

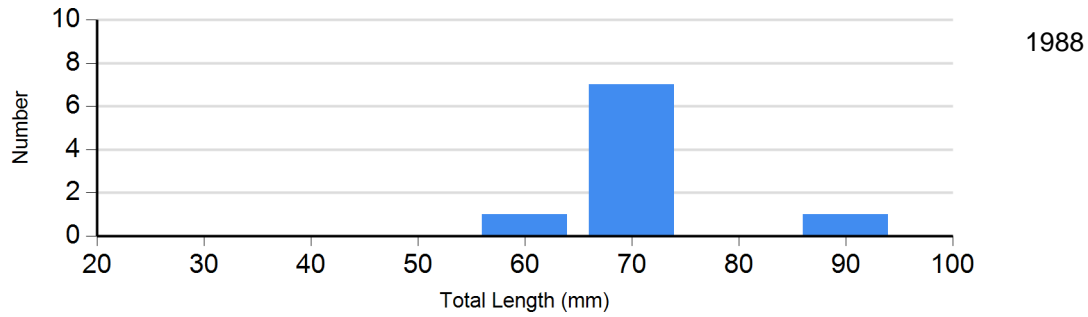


Site: 1393
Species: Brown Trout

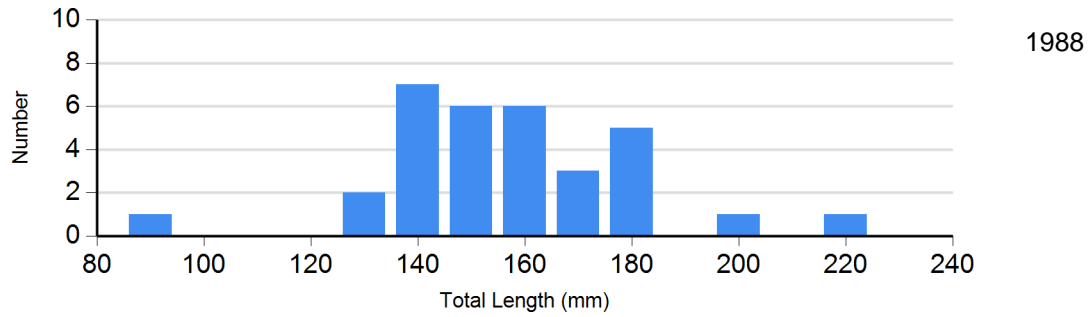


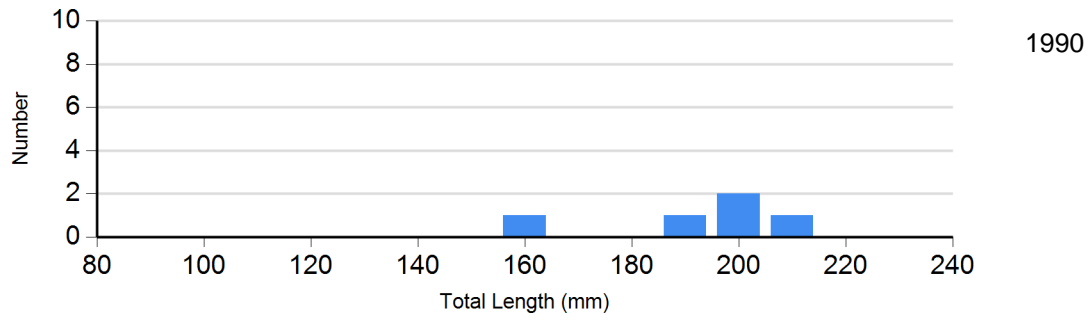


Site: 1393
Species: Longnose Dace

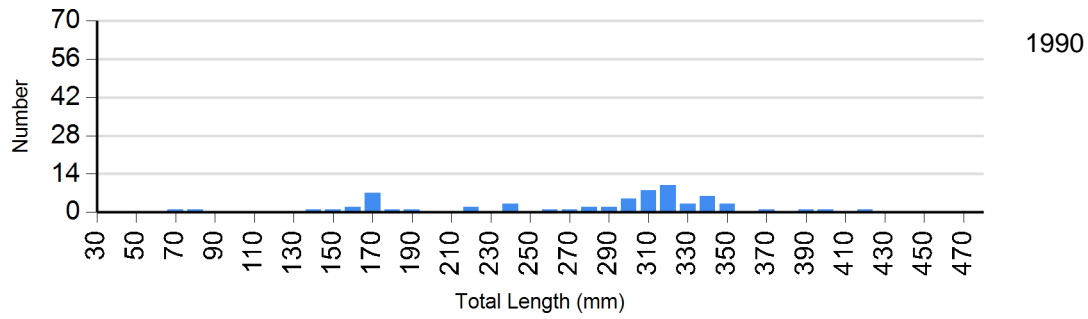
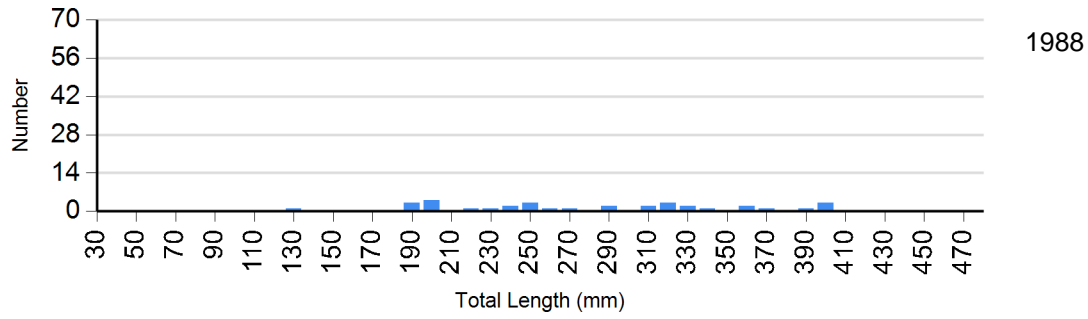


Site: 1393
Species: Mountain Sucker

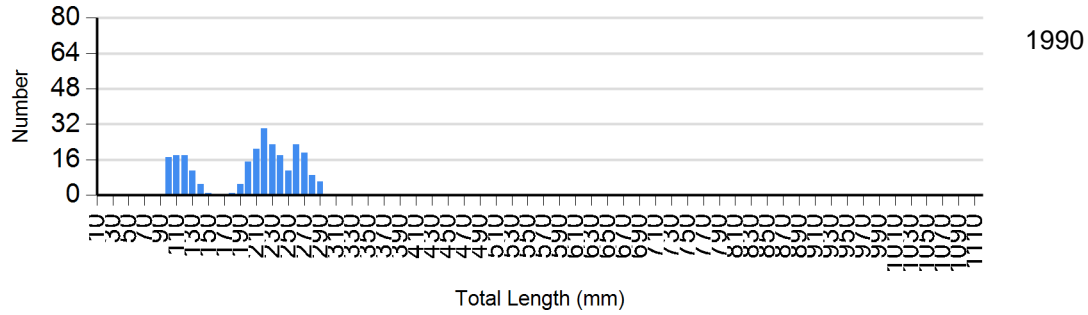
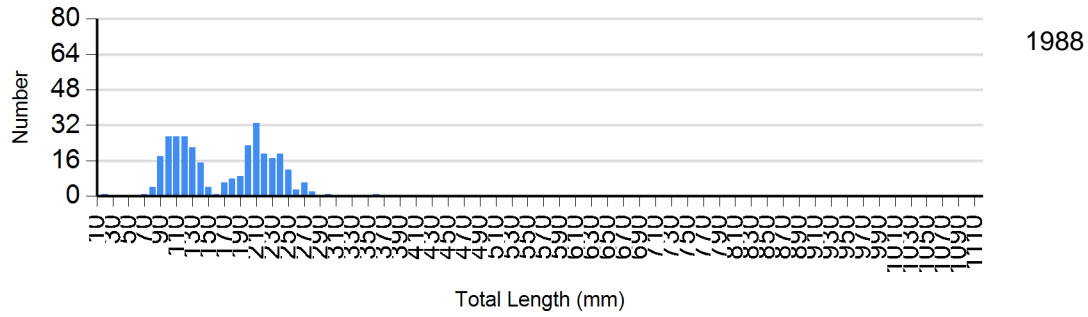




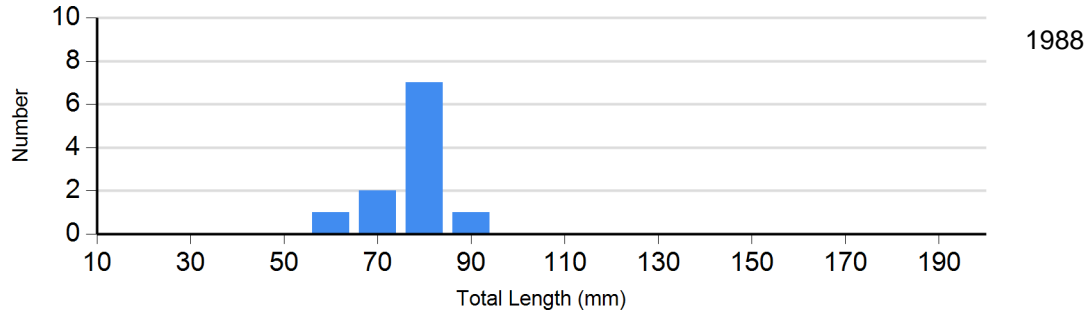
Site: 1393
Species: White Sucker



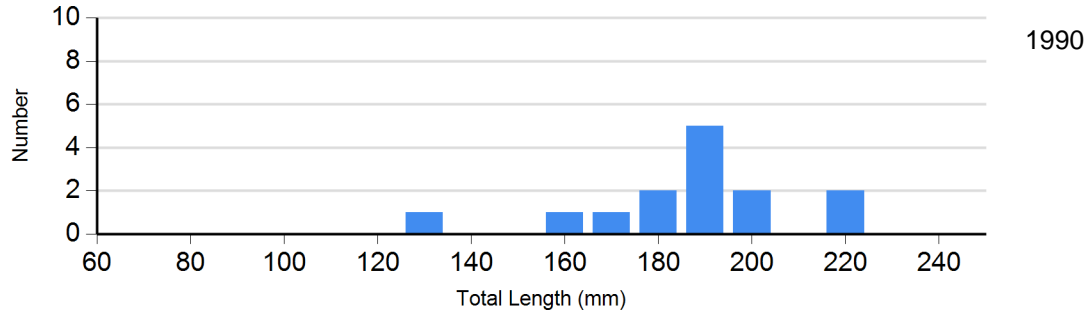
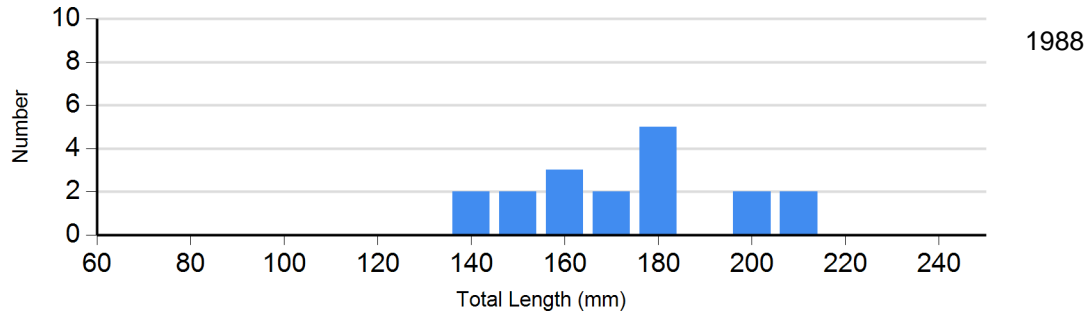
Site: 1412
Species: Brown Trout



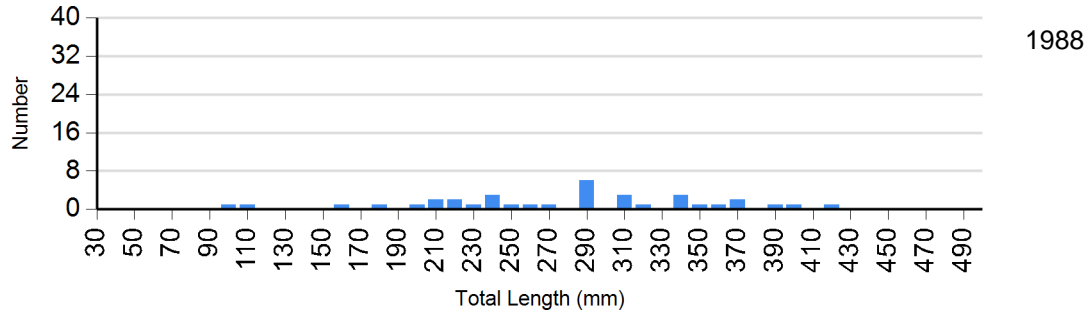
Site: 1412
Species: Longnose Dace

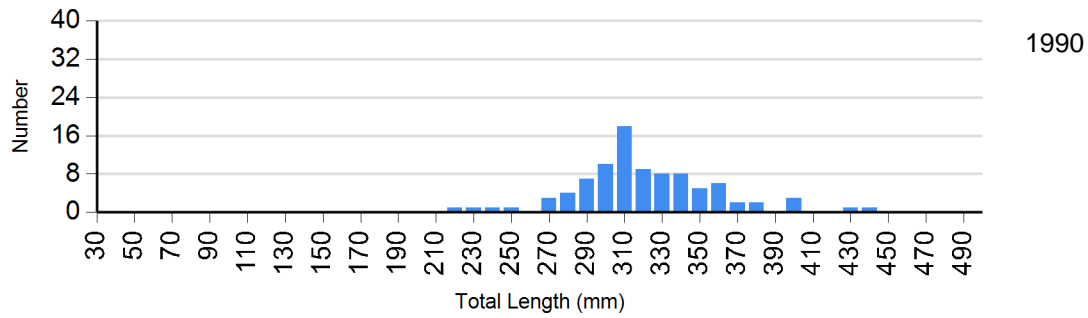


Site: 1412
Species: Mountain Sucker

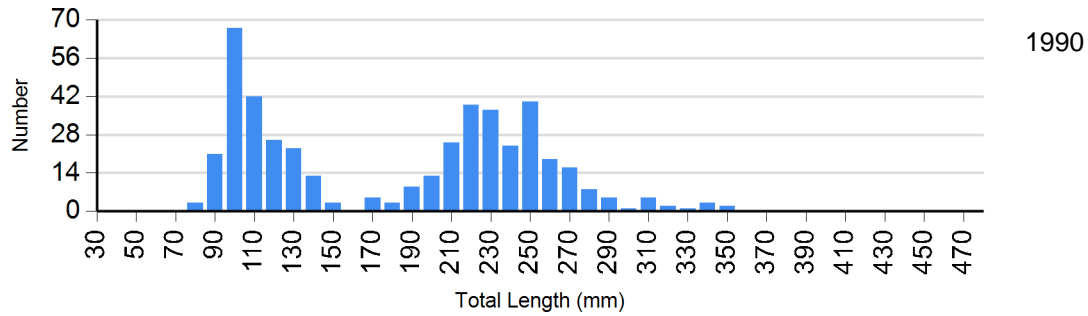


Site: 1412
Species: White Sucker

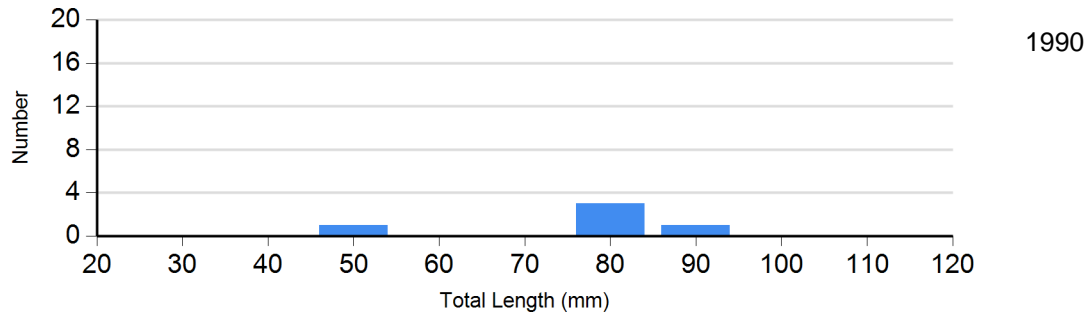




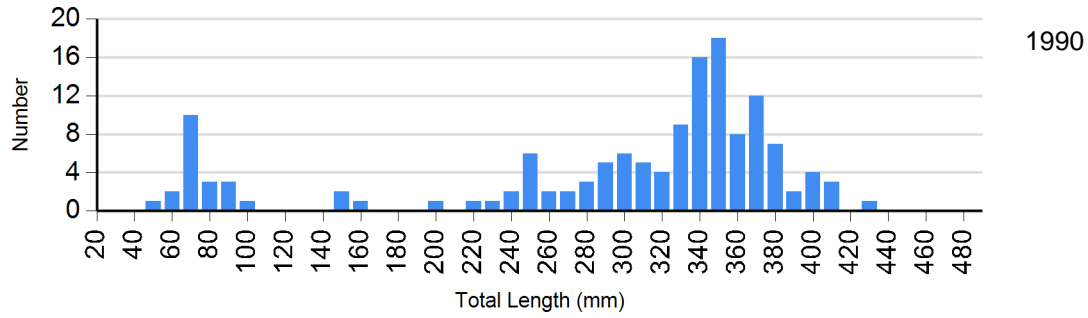
Site: 1434
Species: Brown Trout



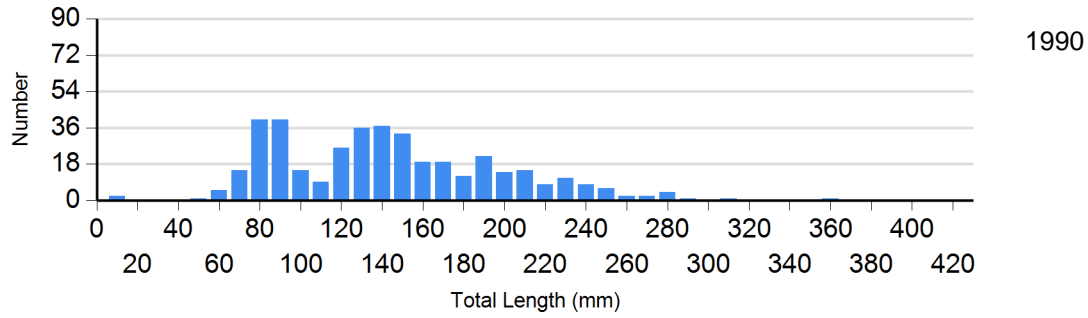
Site: 1434
Species: Longnose Dace



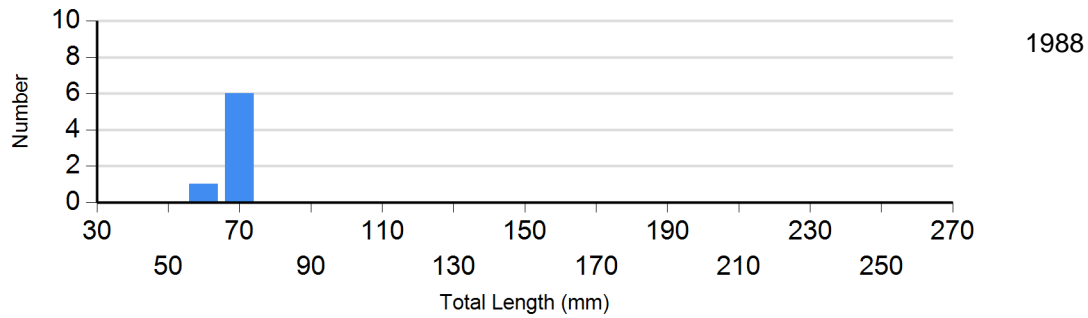
Site: 1434
Species: White Sucker



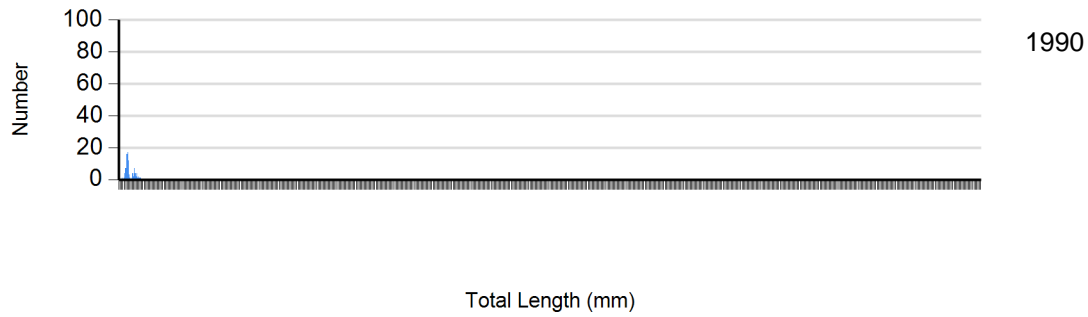
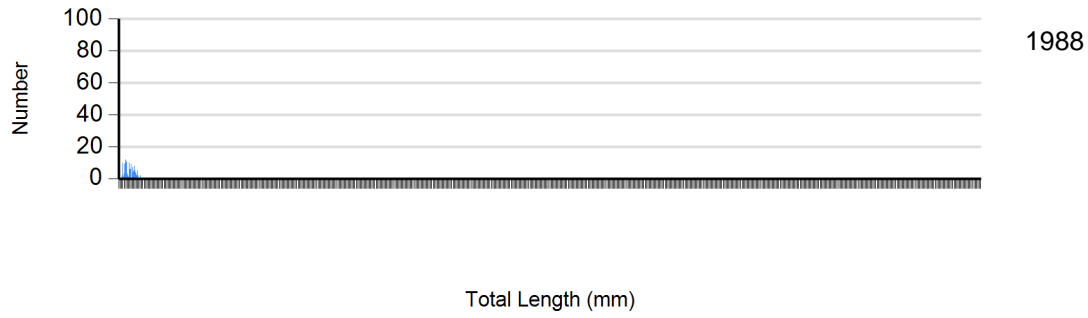
Site: 1656
Species: Brown Trout



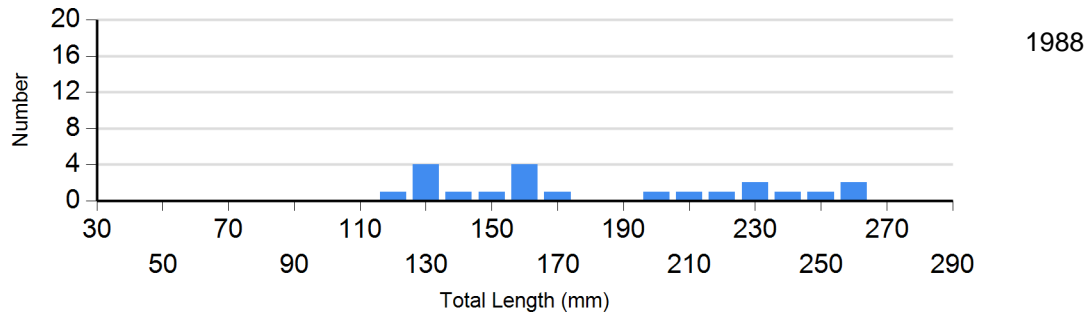
Site: 1833
Species: Brook Trout

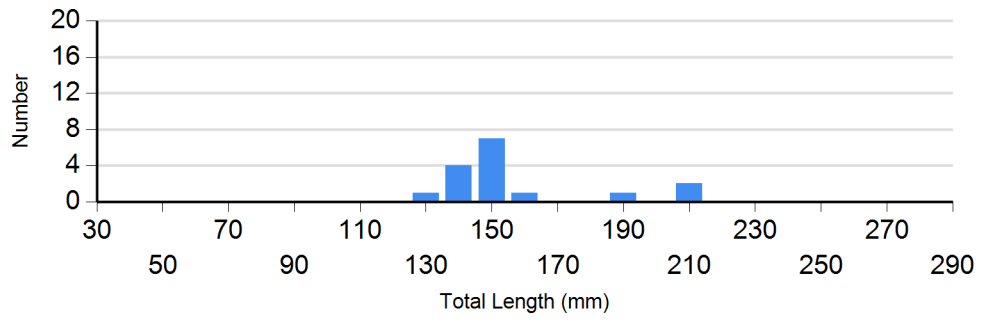


Site: 1833
Species: Brown Trout

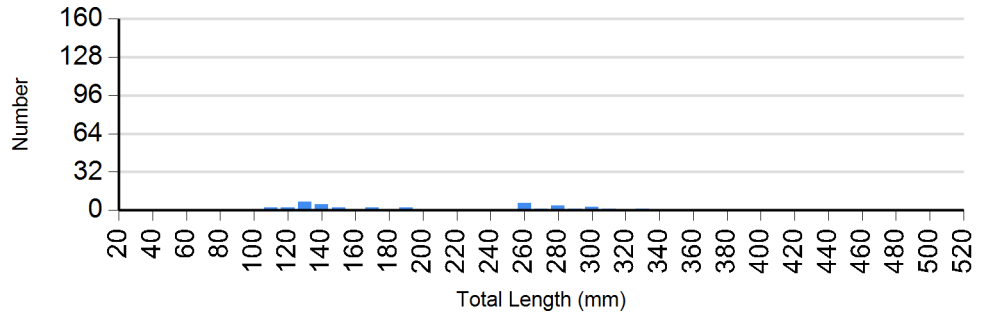
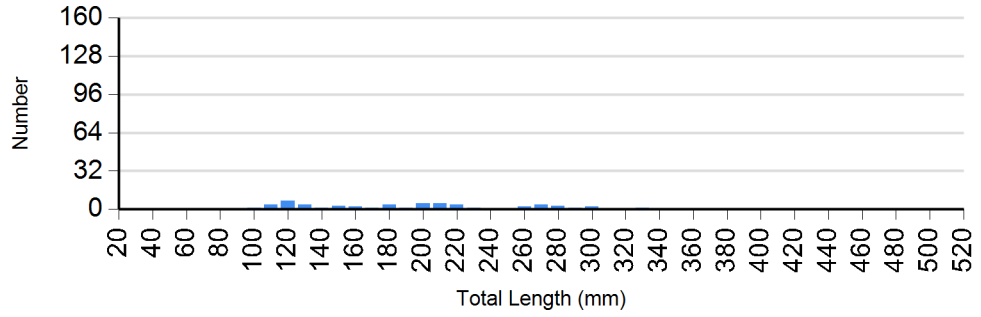


Site: 1843
Species: Brook Trout

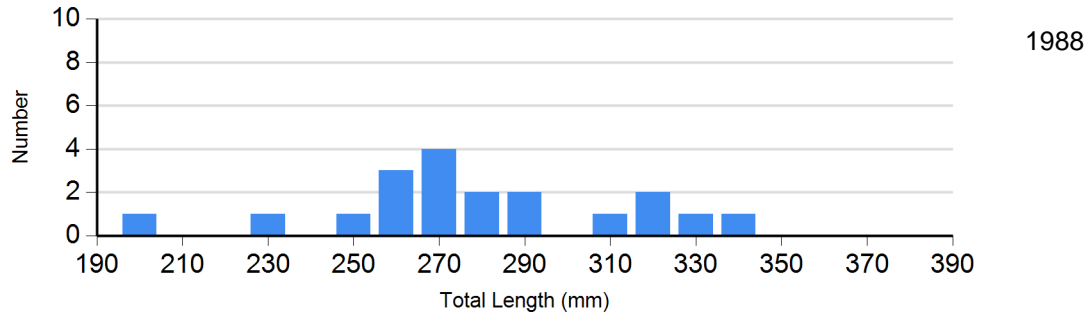




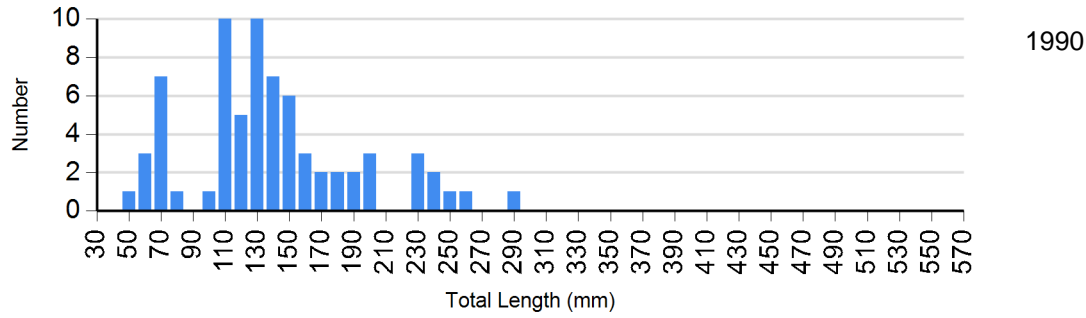
Site: 1843
Species: Brown Trout



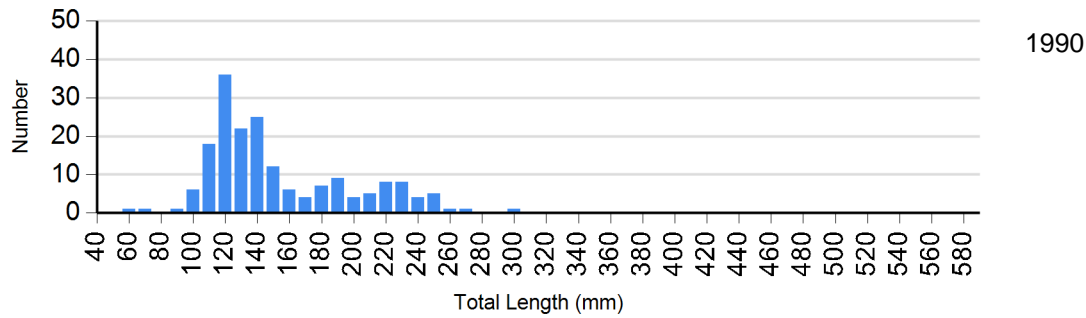
Site: 1843
Species: Hatchery Brown Trout



Site: 1952
Species: Brown Trout



Site: 2007
Species: Brown Trout



Site: 2007
Species: Cutthroat Trout

