

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Whitewood Creek, Lawrence County**  
**09-0056-00**  
**2012**

Table 1. Population and Biomass Estimates for Whitewood Creek

**Site Number:** 43  
**Site Midpoint (Latitude, Longitude):** 44.62164896, -103.47136669  
**Survey Completed by:** Unknown Consultant Firm for mining  
**Stream Classification:** BR3

**Date Sampled:** 10/23/2012  
**Site Length (m):**  
**Mean Width (m):** 0.0  
**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)
Brown Trout	<200mm	19	19	20	19	0	0	0	0	0.00	0	124.7	21.1
Brown Trout	>=200mm	19	19	20	19	0	0	0	0	0.00	0	257.3	176.7
Brown Trout	All	38	38	40	38	0	0	0	0	0.00	0	191.0	98.9
Creek Chub	All	111	112	115	111	0	0	0	0	0.00	0	110.3	18.4
Fathead Minnow	All	11	11	12	11	0	0	0	0	0.00	0	67.7	2.9
Green Sunfish	All	2	2	2	2	0	0	0	0	0.00	0	116.5	37.5
Longnose Dace	All	340	351	360	342	0	0	0	0	0.00	0	60.5	2.2
Longnose Sucker	All	3	3	4	3	0	0	0	0	0.00	0	123.0	27.3
Mountain Sucker	All	18	18	18	18	0	0	0	0	0.00	0	99.1	14.9
Stone Cat	All	3	3	3	3	0	0	0	0	0.00	0	128.3	22.7
White Sucker	All	119	120	123	119	0	0	0	0	0.00	0	168.0	110.3

**Site Number:** 44  
**Site Midpoint (Latitude, Longitude):** 44.62092026, -103.47188053  
**Survey Completed by:** Unknown Consultant Firm for mining

**Date Sampled:** 10/24/2012  
**Site Length (m):**  
**Mean Width (m):** 0.0  
**Conductivity (umhos/cm):**  
**pH:**  
**Water Temperature (C):**

Stream Classification: None

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)
Common Carp	All	6	18	131	6	0	0	0	0	0.00	0	409.0	1445.0
Creek Chub	All	19	20	24	19	0	0	0	0	0.00	0	63.3	3.1
Fathead Minnow	All	25	25	26	25	0	0	0	0	0.00	0	43.8	1.1
Longnose Dace	All	7	7	7	7	0	0	0	0	0.00	0	55.9	2.0
Red Shiner	All	148	413	857	148	0	0	0	0	0.00	0	51.7	1.6
Sand Shiner	All	4	4	5	4	0	0	0	0	0.00	0	50.3	1.5
Shorthead Redhorse	All	6	8	19	6	0	0	0	0	0.00	0	76.7	5.5
Stone Cat	All	1	1	2	1	0	0	0	0	0.00	0	158.0	43.0
Walleye	All	1	1	2	1	0	0	0	0	0.00	0	481.0	1200.0
White Sucker	All	82	164	299	82	0	0	0	0	0.00	0	69.0	3.7

Site Number: 131

Date Sampled: 10/23/2012

Conductivity (umhos/cm):

Site Midpoint (Latitude, Longitude): 44.58943150, -103.52027768

Site Length (m):

pH:

Survey Completed by: Unknown Consultant Firm for mining

Mean Width (m): 0.0

Water Temperature (C):

Stream Classification: None

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)
Creek Chub	All	483	493	501	485	0	0	0	0	0.00	0	70.4	5.8
Longnose Dace	All	46	46	46	46	0	0	0	0	0.00	0	55.0	1.7
Mountain Sucker	All	8	8	9	8	0	0	0	0	0.00	0	81.8	7.1
Stone Cat	All	4	4	5	4	0	0	0	0	0.00	0	180.8	55.5

White Sucker All 58 60 64 58 0 0 0 0 0.00 0 96.2 17.3

**Site Number:** 295

**Date Sampled:** 10/24/2012

**Conductivity (umhos/cm):**

**Site Midpoint (Latitude, Longitude):** 44.51740810, -103.60458517

**Site Length (m):**

**pH:**

**Survey Completed by:** Unknown Consultant Firm for mining

**Mean Width (m):** 0.0

**Water Temperature (C):**

**Stream Classification:** BR0

**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)
Brown Trout	<200mm	8	8	10	8	0	0	0	0	0.00	0	117.5	17.1
Brown Trout	All	8	8	10	8	0	0	0	0	0.00	0	117.5	17.1
Longnose Dace	All	379	415	436	394	0	0	0	0	0.00	0	56.7	1.9
Mountain Sucker	All	10	10	11	10	0	0	0	0	0.00	0	89.2	9.5
White Sucker	All	23	24	28	23	0	0	0	0	0.00	0	68.2	4.1

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	
<b>Class BR1</b>	Number of wild Brown Trout exceeds 150 per acre
<b>Class BR2</b>	Number of wild Brook Trout ranges from 25 to 150 per acre
<b>Class BR3</b>	Number of wild Brown Trout is less than 25 per acre
<b>Class BK1</b>	Number of wild Brook Trout exceeds 150 per acre
<b>Class BK2</b>	Number of wild Brook Trout ranges from 25 to 150 per acre
<b>Class BK3</b>	Number of wild Brook Trout is less than 25 per acre
<b>Class RB1</b>	Number of wild Rainbow Trout exceeds 25 per acre
<b>Class RB2</b>	Number of wild Rainbow Trout is less than 25 per acre

Table 2. Species composition and population estimates on Whitewood Creek, 2002-2012

**Site 43**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 09, 2002	1	1-2	
	Oct 21, 2009	5	5-5	
	Nov 02, 2011	18	18-18	
	Oct 23, 2012	19	19-20	
Brown Trout >=200mm	Oct 09, 2002	2	2-2	BR3
	Oct 14, 2003	1	1-1	BR3
	Oct 12, 2006	3	3-4	BR2

Brown Trout >=200mm	Oct 21, 2009	8	8-8	BR3
	Nov 02, 2011	5	5-5	BR3
	Oct 23, 2012	19	19-20	BR3
Common Carp	Oct 12, 2006	119	119-121	
Creek Chub	Oct 09, 2002	49	48-52	
	Oct 14, 2003	9	9-9	
	Oct 21, 2009	213	209-218	
	Nov 02, 2011	457	454-461	
	Oct 23, 2012	112	111-115	
Fathead Minnow	Oct 21, 2009	1	1-1	
	Nov 02, 2011	53	53-53	
	Oct 23, 2012	11	11-12	
Green Sunfish	Oct 23, 2012	2	2-2	
Longnose Dace	Oct 09, 2002	158	137-179	
	Oct 14, 2003	473	460-486	
	Oct 12, 2006	102	90-116	

Longnose Dace	Oct 21, 2009	450	419-481
	Nov 02, 2011	383	364-402
	Oct 23, 2012	351	342-360
Longnose Sucker	Oct 23, 2012	3	3-4
Mountain Sucker	Oct 09, 2002	3	3-3
	Oct 14, 2003	1	1-1
	Oct 12, 2006	1	1-2
	Oct 21, 2009	42	42-44
	Nov 02, 2011	102	101-105
	Oct 23, 2012	18	18-18
Stone Cat	Oct 09, 2002	2	2-3
	Oct 21, 2009	8	4-42
	Nov 02, 2011	2	2-2
	Oct 23, 2012	3	3-3
White Sucker	Oct 09, 2002	26	26-28
	Oct 14, 2003	8	8-8

White Sucker	Oct 12, 2006	18	18-18
	Oct 21, 2009	58	58-59
	Nov 02, 2011	97	97-97
	Oct 23, 2012	120	119-123

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**Site 44**

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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brown Trout >=200mm	Oct 20, 2009	1	1-1	BR3
Common Carp	Oct 15, 2003	1	1-1	
	Aug 17, 2009	1	1-1	
	Oct 24, 2012	18	6-131	
Creek Chub	Oct 15, 2003	5	5-5	
	Oct 20, 2009	8	8-10	
	Oct 31, 2011	48	48-50	
	Oct 24, 2012	20	19-24	
Fathead Minnow	Oct 15, 2003	12	12-12	
	Oct 24, 2012	25	25-26	

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Green Sunfish	Oct 20, 2009	9	9-10
Longnose Dace	Oct 10, 2002	7	7-8
	Oct 15, 2003	118	113-125
	Oct 20, 2009	108	89-130
	Oct 24, 2012	7	7-7
Mountain Sucker	Aug 17, 2009	3	3-3
	Oct 20, 2009	11	11-11
	Oct 31, 2011	24	24-26
Red Shiner	Oct 24, 2012	413	148-857
Sand Shiner	Oct 10, 2002	253	248-259
	Oct 15, 2003	70	71-85
	Oct 20, 2009	5	5-5
	Oct 24, 2012	4	4-5
	Shorthead Redhorse	Aug 17, 2009	4
	Oct 20, 2009	6	6-7
	Oct 24, 2012	8	6-19



Stone Cat	Oct 10, 2002	2	2-3
	Oct 15, 2003	22	19-30
	Oct 20, 2009	87	56-137
	Oct 24, 2012	1	1-2
Walleye	Oct 24, 2012	1	1-2
White Sucker	Oct 10, 2002	6	6-6
	Oct 15, 2003	8	8-9
	Oct 20, 2009	1	1-5
	Oct 24, 2012	164	82-299

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**Site 131**

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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brown Trout <200mm	Oct 20, 2009	1	1-1	
Brown Trout >=200mm	Oct 11, 2006	1	1-1	BR3
Common Carp	Oct 11, 2006	426	420-432	
Creek Chub	Oct 10, 2002	149	147-153	
	Oct 15, 2003	61	61-62	

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Creek Chub	Oct 20, 2009	50	46-57
	Nov 01, 2011	48	48-50
	Oct 23, 2012	493	485-501
Fathead Minnow	Oct 10, 2002	1	1-1
	Oct 15, 2003	8	8-9
	Oct 20, 2009	1	1-1
	Nov 01, 2011	5	5-5
Green Sunfish	Oct 10, 2002	1	1-1
	Oct 11, 2006	2	2-2
	Oct 20, 2009	4	4-6
	Nov 01, 2011	22	21-26
Longnose Dace	Oct 10, 2002	64	62-68
	Oct 15, 2003	206	203-211
	Oct 11, 2006	7	7-9
	Oct 20, 2009	446	385-507
	Nov 01, 2011	222	208-236

Longnose Dace	Oct 23, 2012	46	46-46
Mountain Sucker	Oct 20, 2009	37	27-59
	Nov 01, 2011	24	24-26
	Oct 23, 2012	8	8-9
Shorthead Redhorse	Oct 20, 2009	1	1-2
Stone Cat	Oct 10, 2002	3	3-4
	Oct 15, 2003	17	17-19
	Oct 11, 2006	3	3-3
	Oct 20, 2009	18	19-26
	Nov 01, 2011	17	18-22
	Oct 23, 2012	4	4-5
White Sucker	Oct 10, 2002	7	7-7
	Oct 15, 2003	3	3-3
	Oct 11, 2006	81	80-84
	Oct 20, 2009	58	34-112
	Nov 01, 2011	46	45-49

White Sucker

Oct 23, 2012

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58-64

**Site 295**

<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brown Trout <200mm	Oct 09, 2002	14	14-16	
	Oct 14, 2003	3	3-3	
	Oct 21, 2009	14	14-16	
	Nov 02, 2011	78	76-82	
	Oct 24, 2012	8	8-10	
Brown Trout >=200mm	Oct 09, 2002	2	2-2	BR3
	Jun 23, 2009	1	1-1	BR3
	Oct 21, 2009	10	10-11	BR3
Common Carp	Oct 12, 2006	62	62-63	
	Oct 12, 2006	81	44-159	
Creek Chub	Oct 09, 2002	22	15-44	
	Oct 14, 2003	2	2-4	
	Oct 21, 2009	35	35-36	

Creek Chub	Nov 02, 2011	8	8-9
Fathead Minnow	Nov 02, 2011	24	24-25
Longnose Dace	Oct 09, 2002	397	349-445
	Oct 14, 2003	695	653-737
	Oct 12, 2006	290	273-307
	Oct 21, 2009	4809	4172-5446
	Nov 02, 2011	489	257-721
	Oct 24, 2012	415	394-436
	Mountain Sucker	Oct 09, 2002	6
Oct 14, 2003		2	2-2
Jun 23, 2009		24	24-24
Oct 21, 2009		154	141-167
Nov 02, 2011		29	23-43
Oct 24, 2012		10	10-11
Sand Shiner		Oct 12, 2006	1
Shorthead Redhorse	Oct 12, 2006	24	20-34

Stone Cat	Oct 21, 2009	4	4-4
White Sucker	Oct 09, 2002	85	83-89
	Oct 14, 2003	14	14-15
	Oct 12, 2006	73	73-75
	Oct 12, 2006	7	7-8
	Oct 21, 2009	6	6-7
	Nov 02, 2011	5	5-6
	Oct 24, 2012	24	23-28

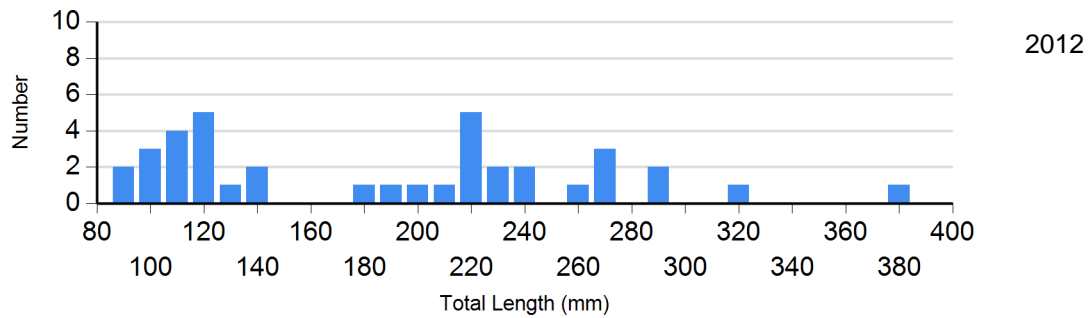
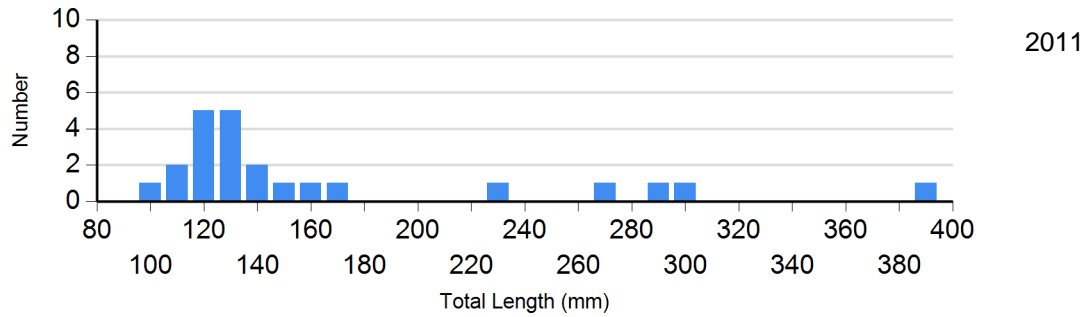
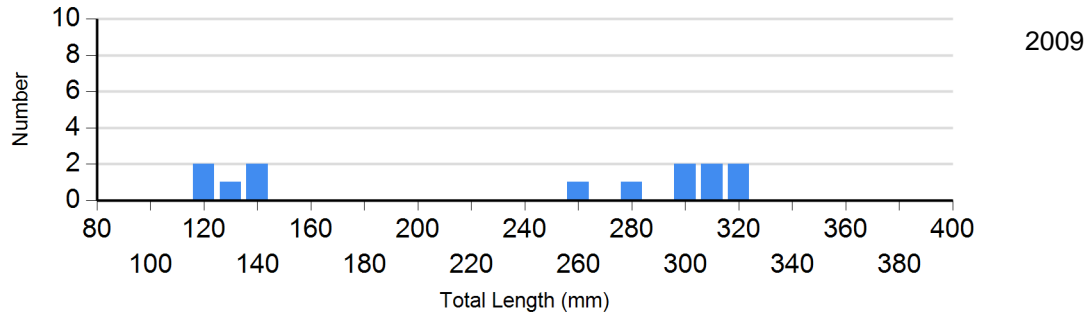
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## Length Frequency Distribution

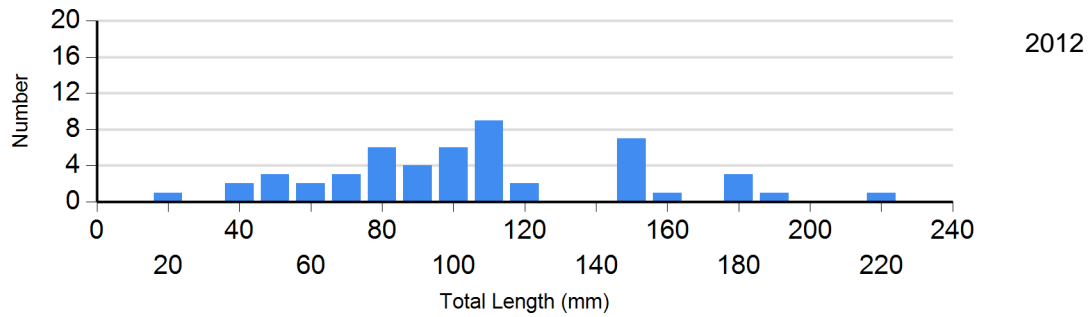
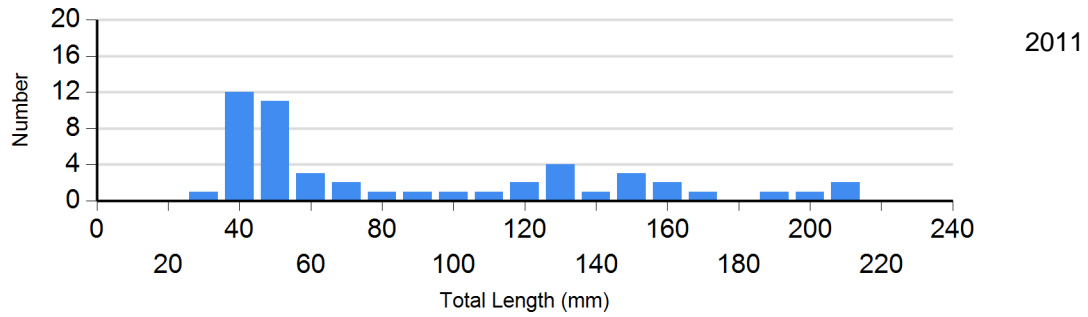
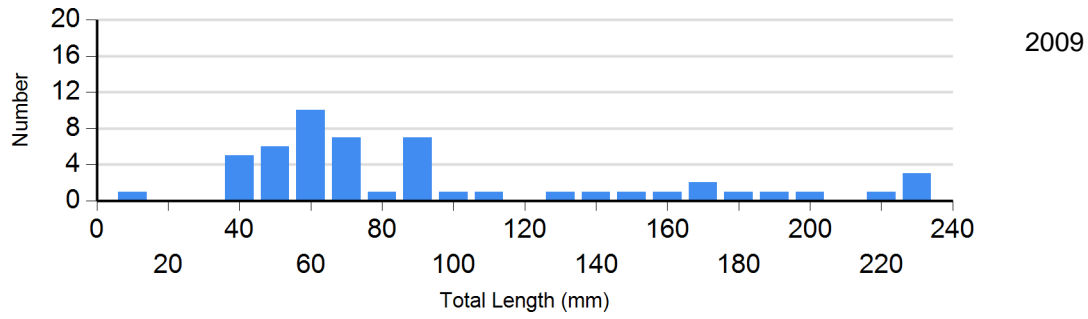
Length frequency histogram of species sampled by year.

**Site:** 43

**Species:** Brown Trout

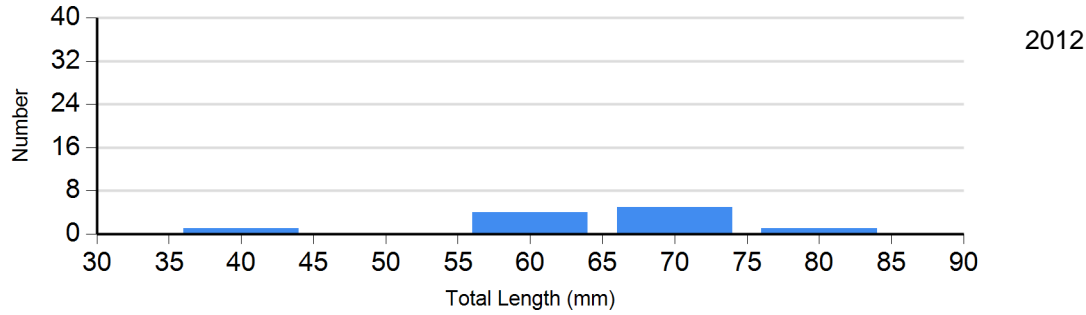
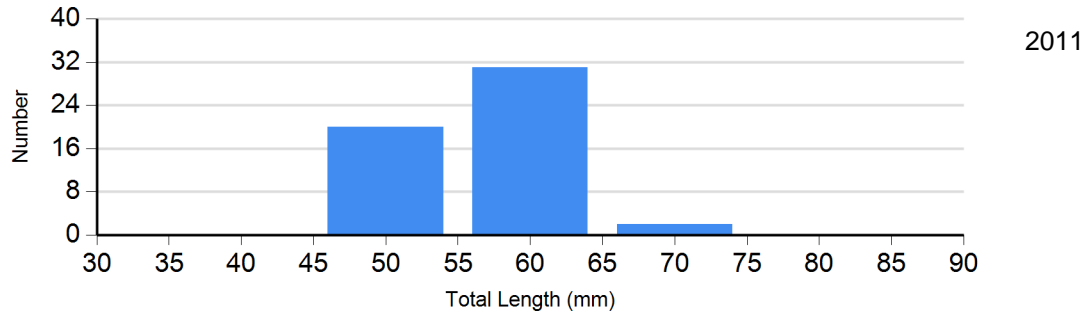


Site: 43  
Species: Creek Chub

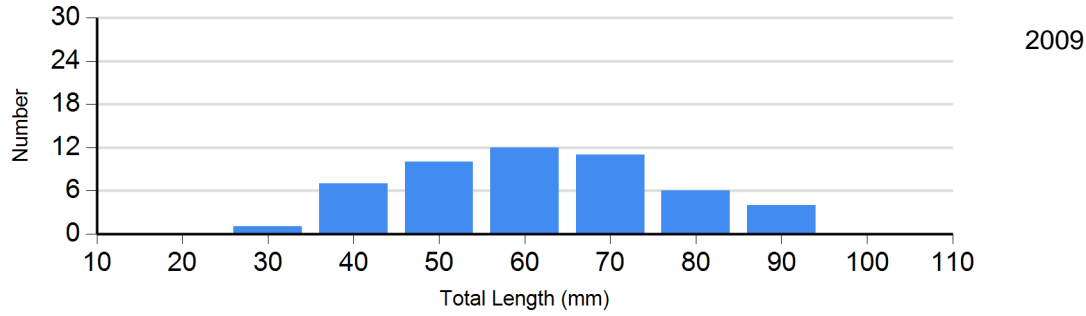


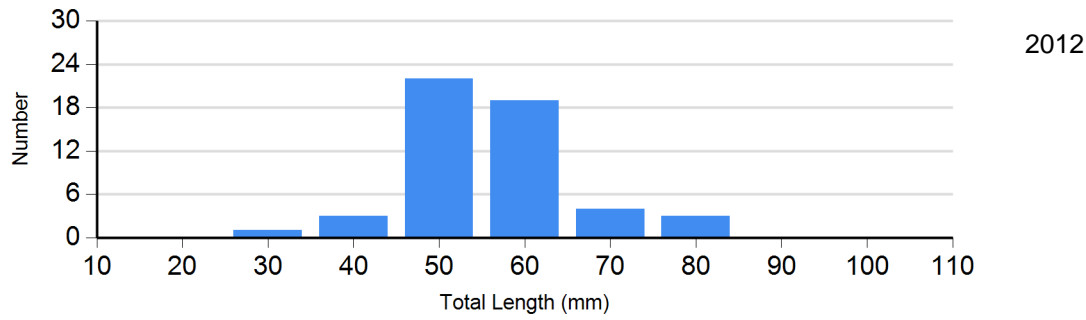
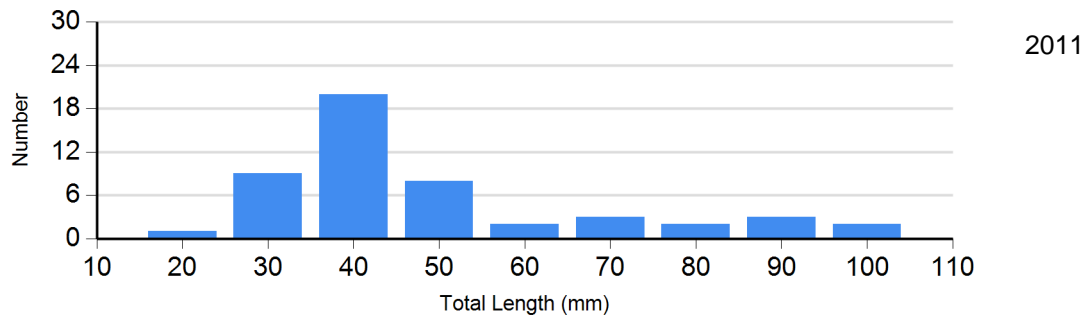


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**Species:** Fathead Minnow

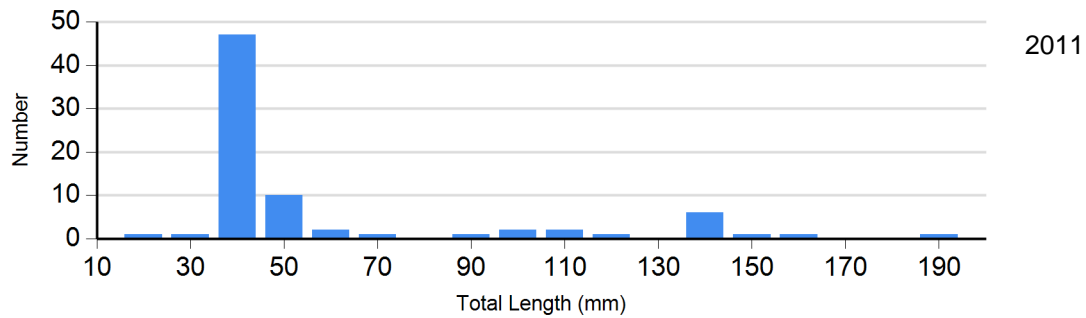
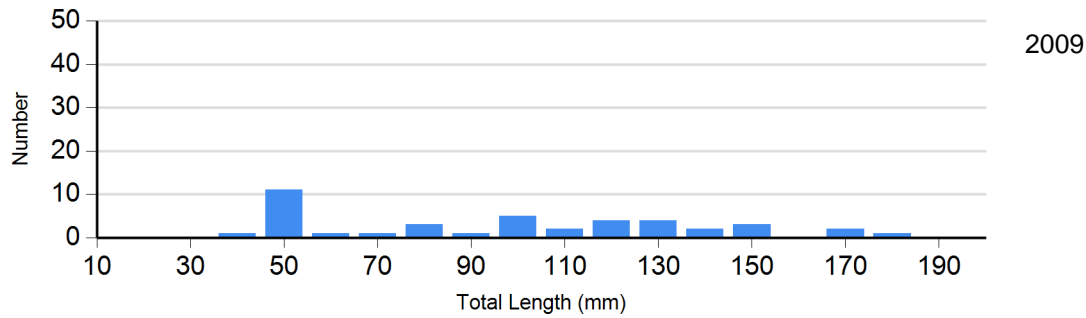


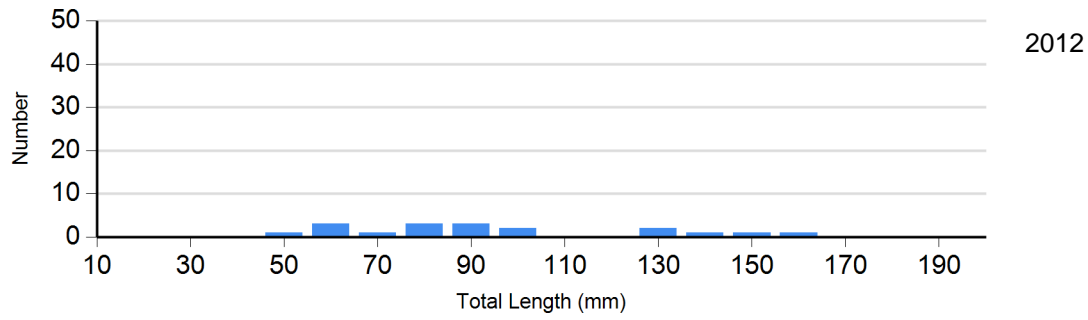
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**Species:** Longnose Dace



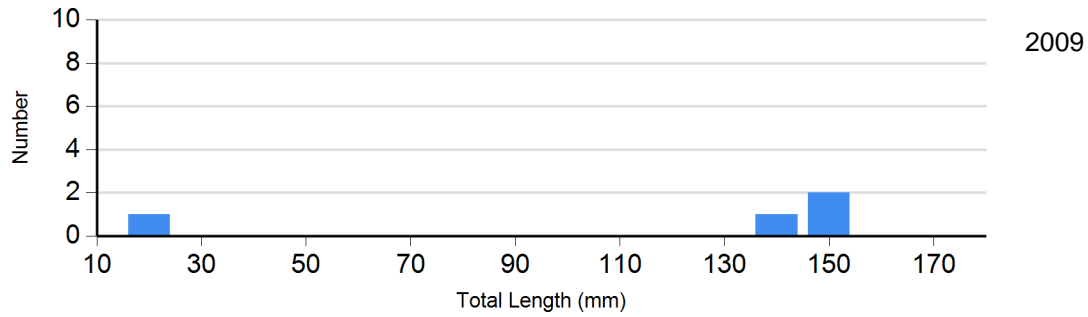


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**Species:** Mountain Sucker

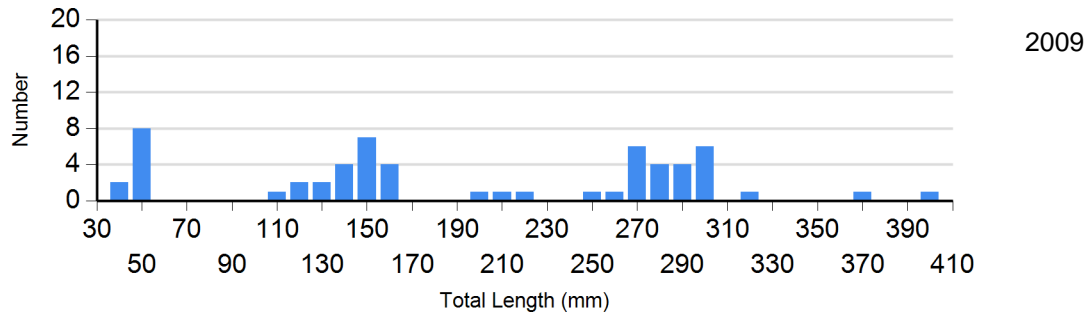


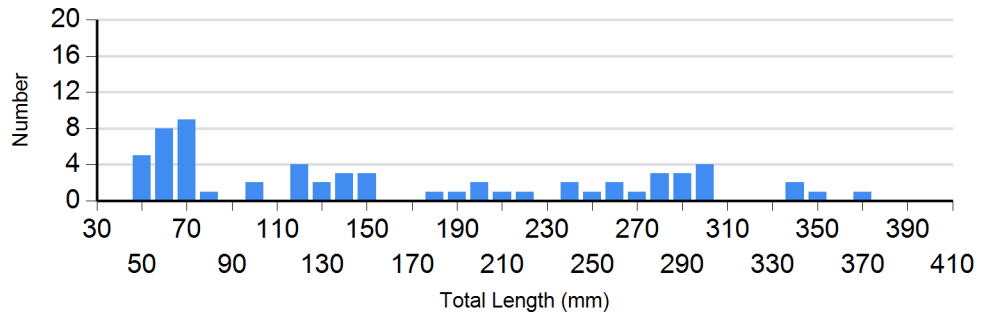
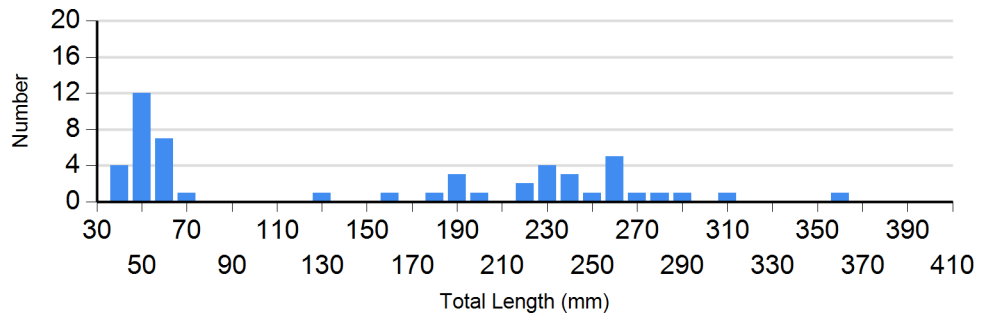


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**Species:** Stone Cat

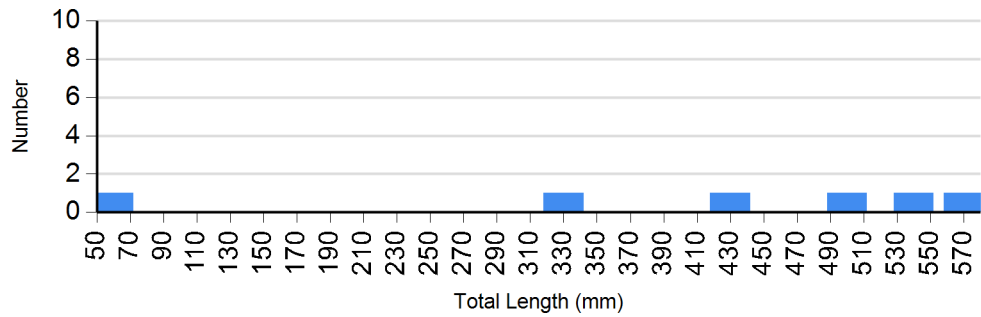


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**Species:** White Sucker

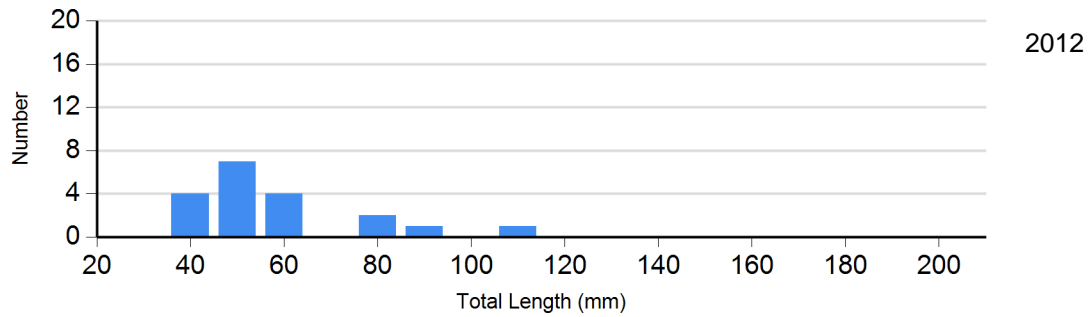
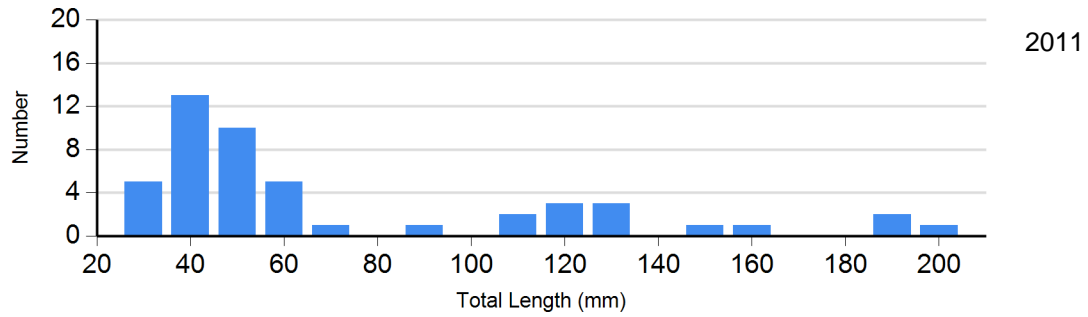
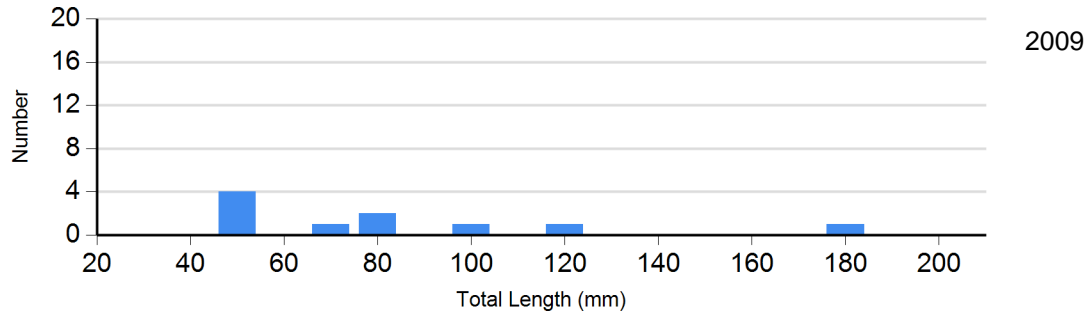




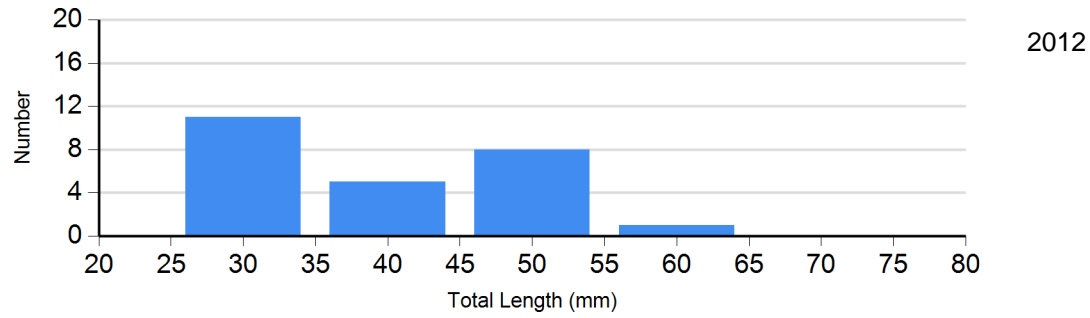
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**Species:** Common Carp



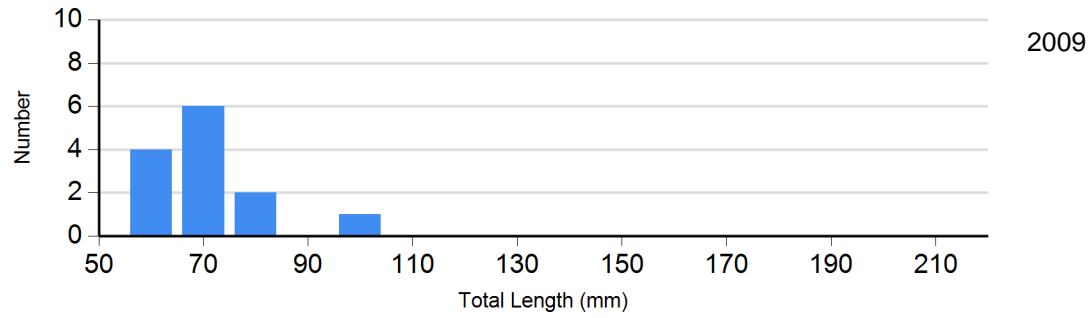
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Species: Creek Chub



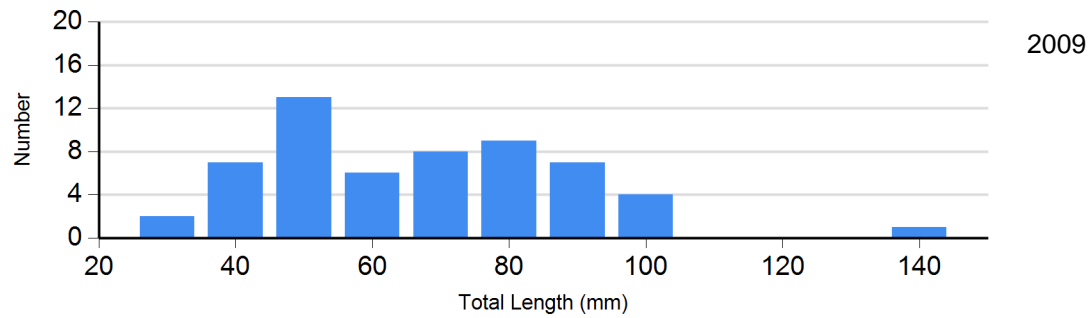
**Site:** 44  
**Species:** Fathead Minnow

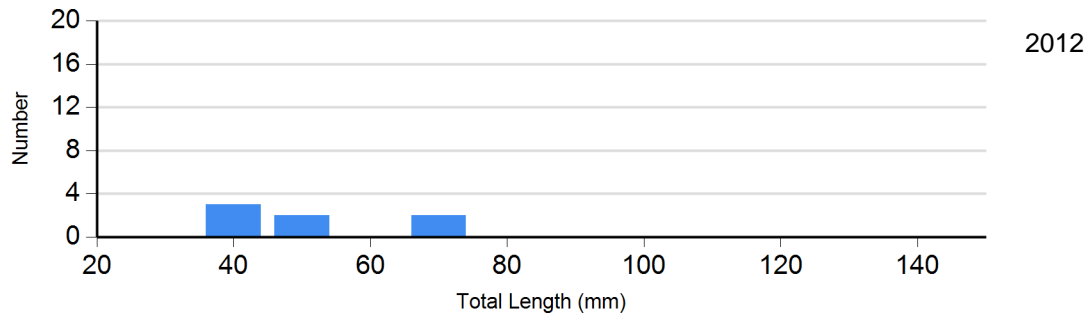


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**Species:** Green Sunfish

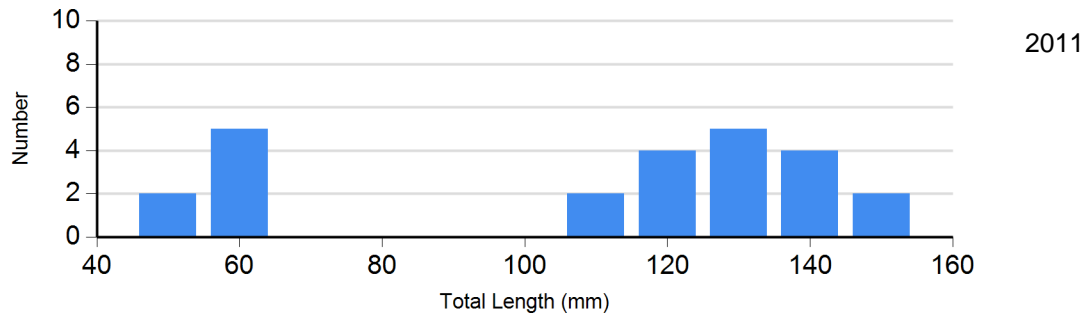
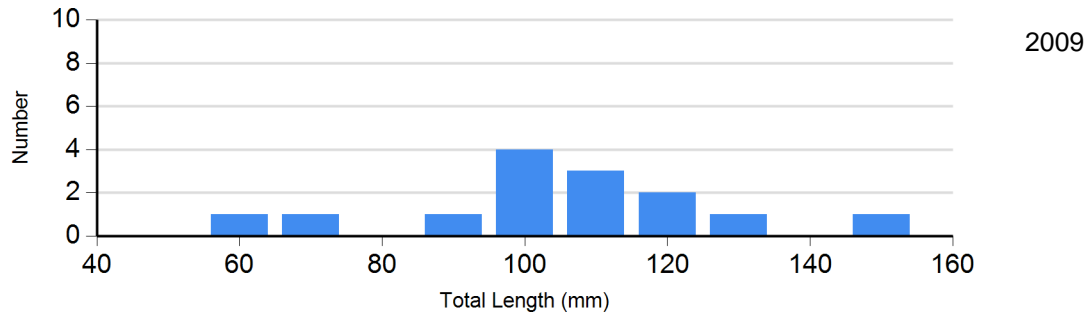


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**Species:** Longnose Dace

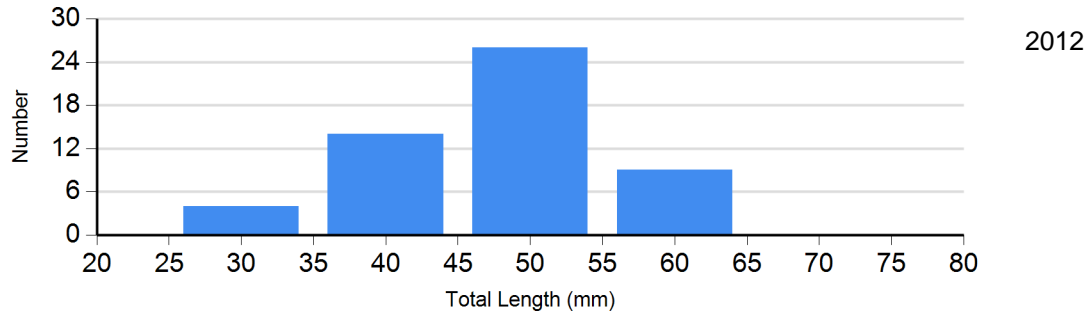




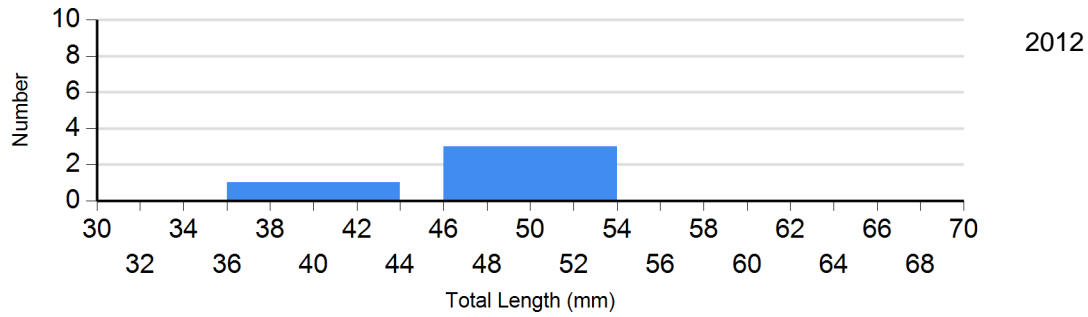
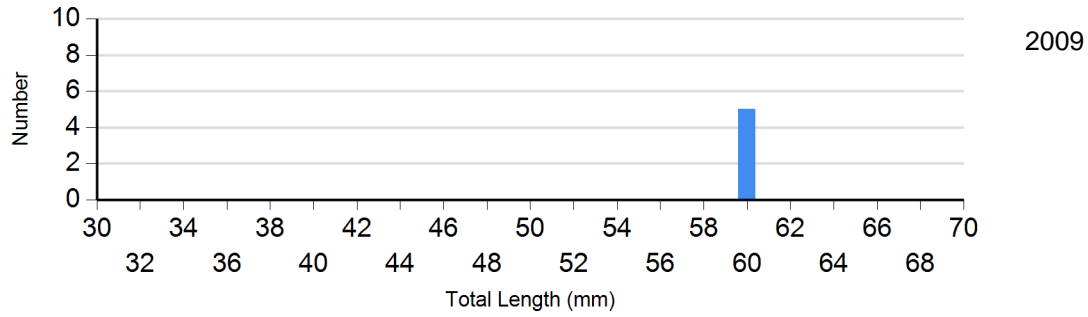
**Site: 44**  
**Species: Mountain Sucker**



**Site: 44**  
**Species: Red Shiner**

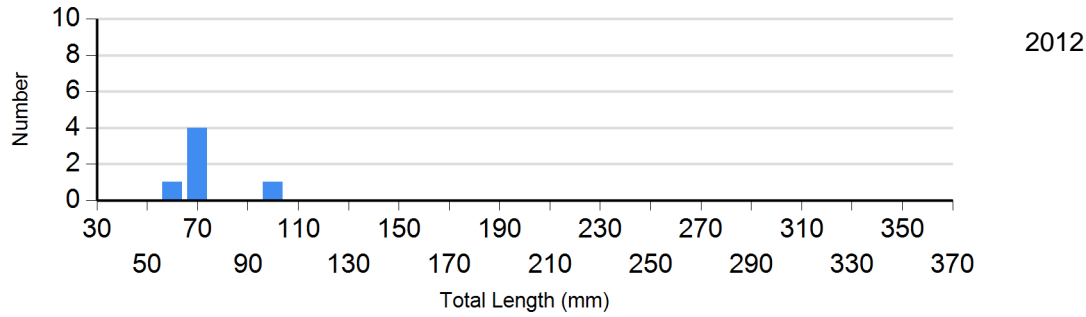
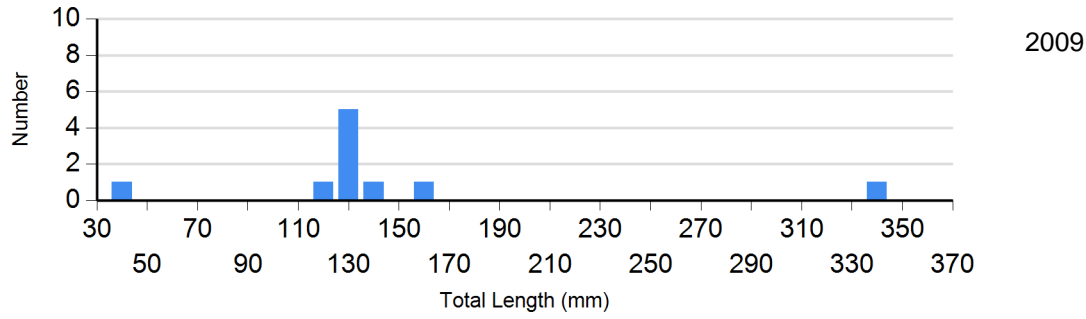


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**Species: Sand Shiner**

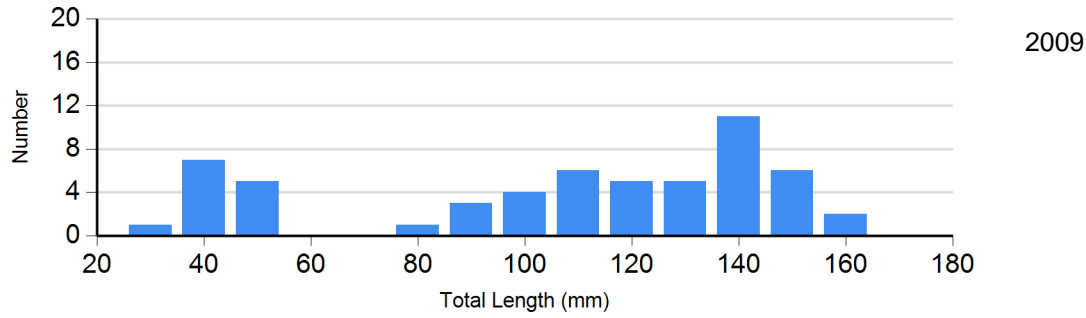




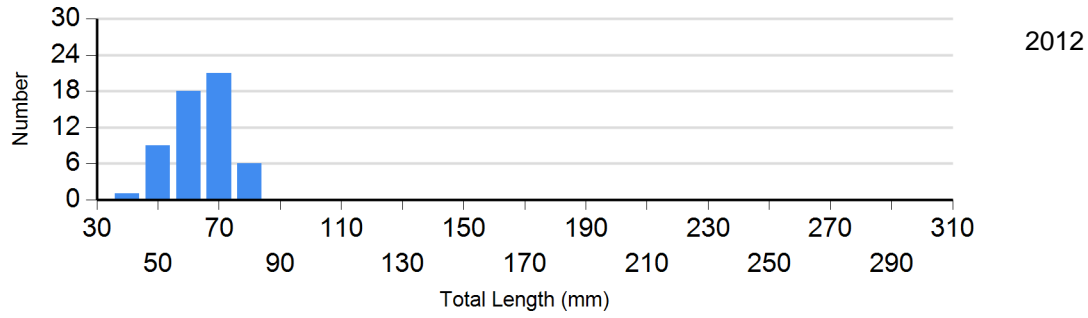
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**Species: Shorthead Redhorse**



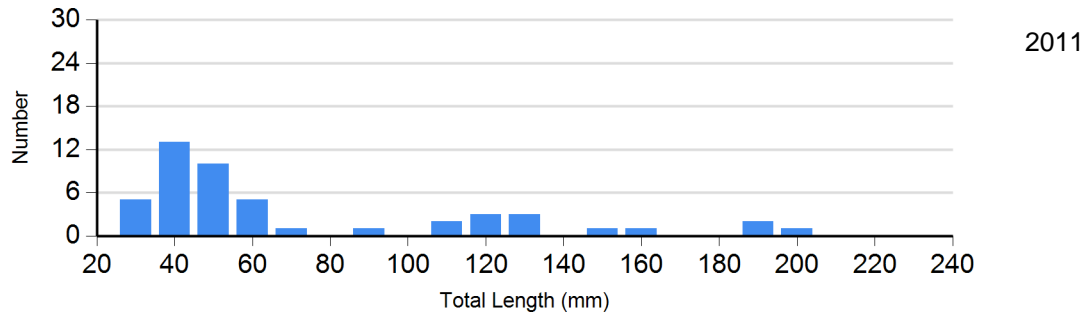
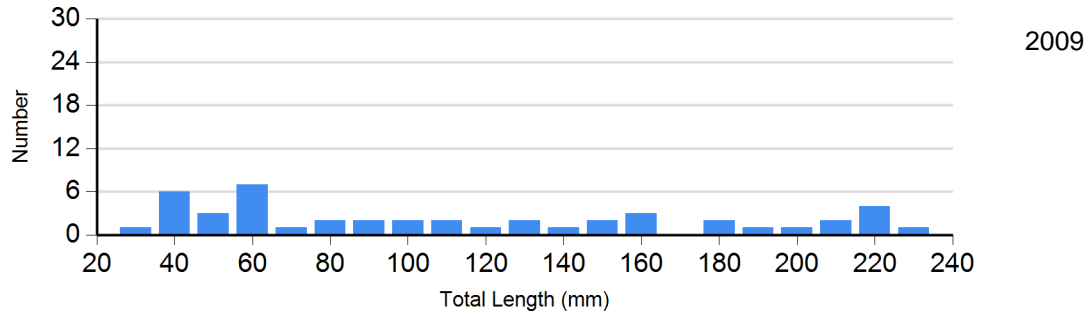
**Site: 44**  
**Species: Stone Cat**

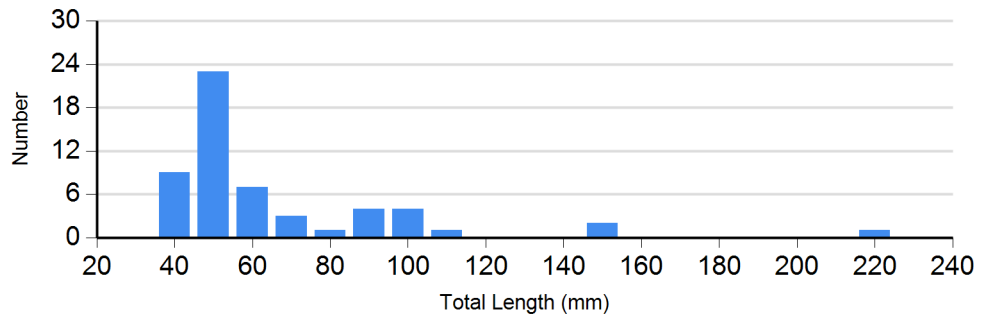


**Site: 44**  
**Species: White Sucker**

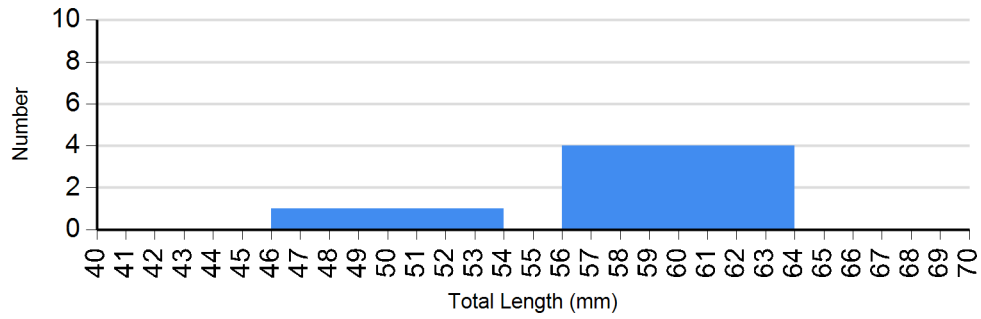


**Site: 131**  
**Species: Creek Chub**

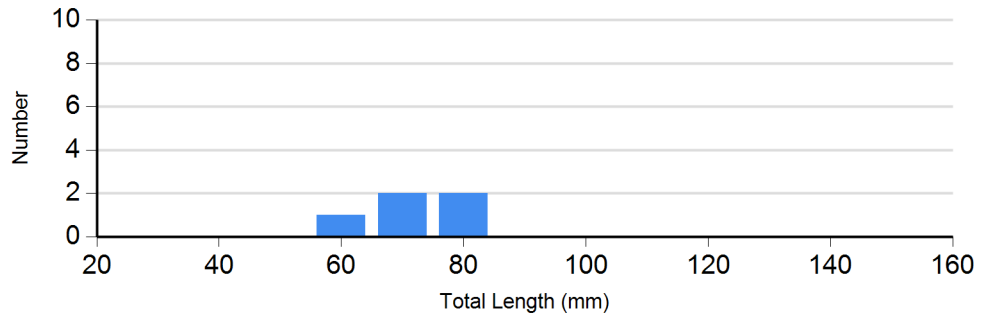


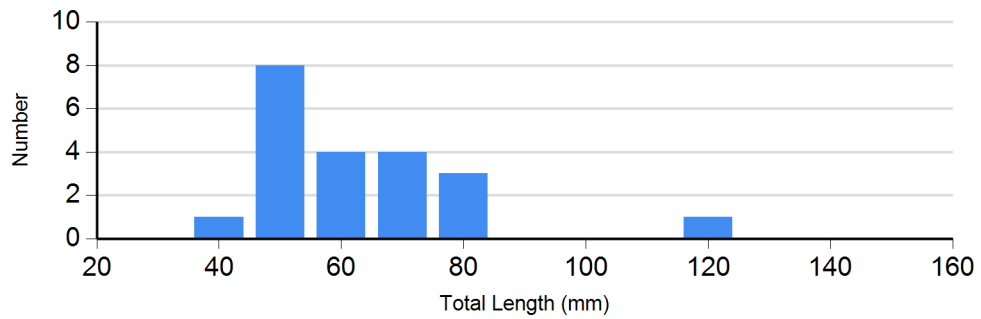


**Site:** 131  
**Species:** Fathead Minnow

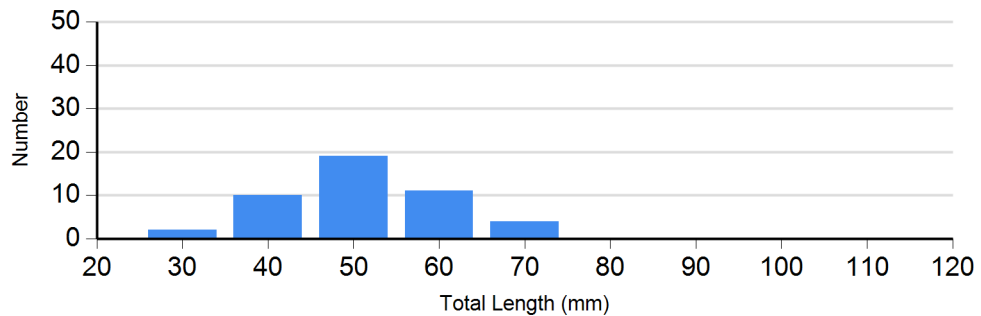
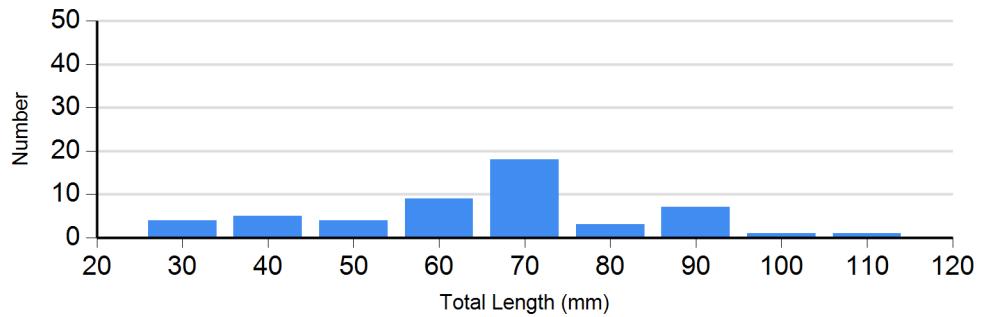
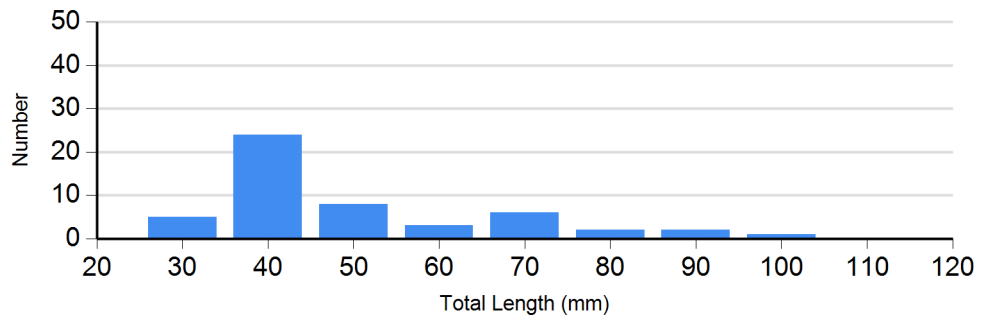


**Site:** 131  
**Species:** Green Sunfish

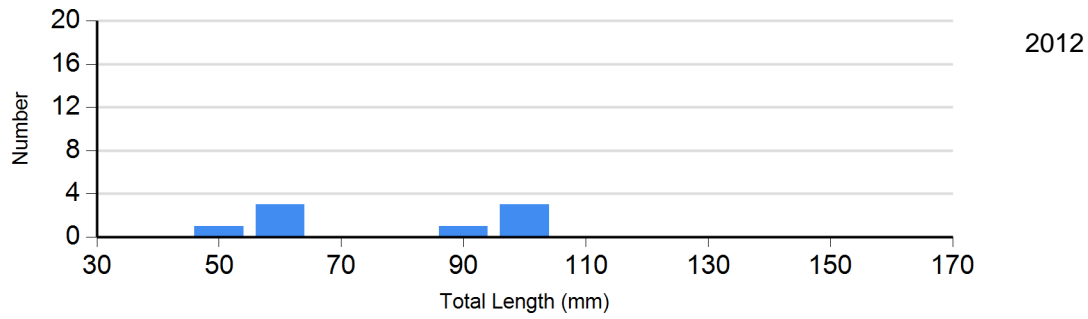
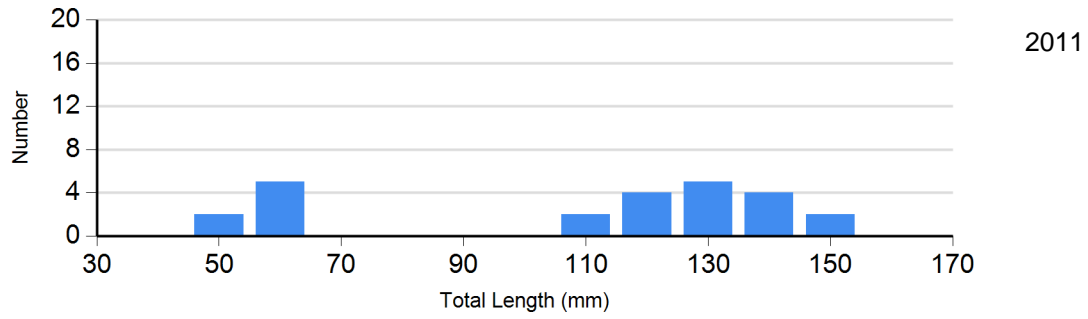
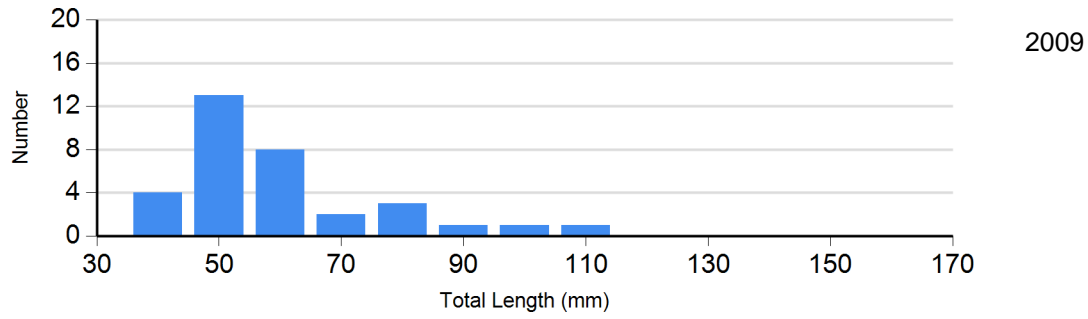




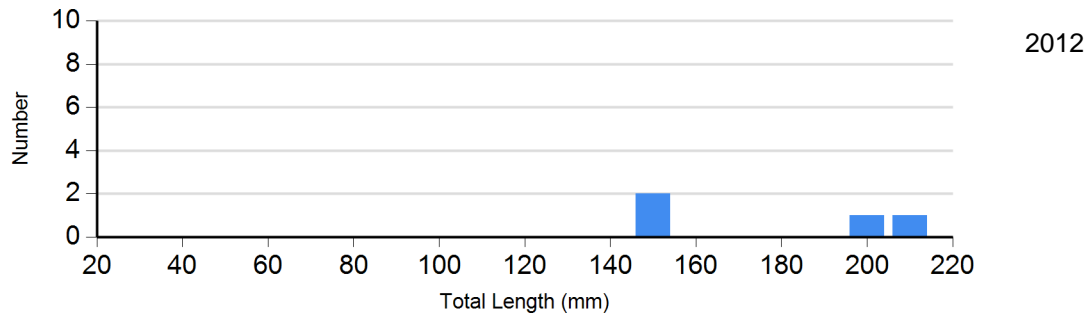
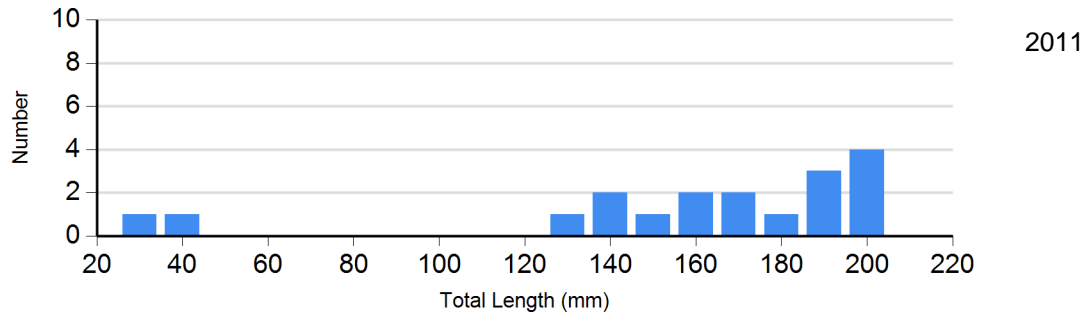
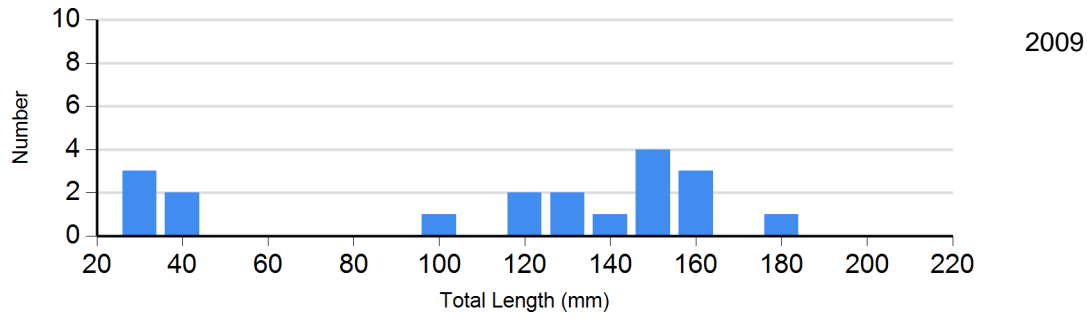
**Site:** 131  
**Species:** Longnose Dace



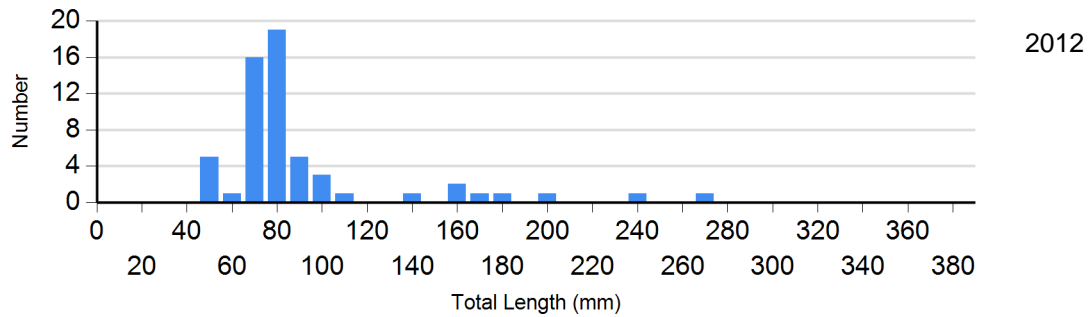
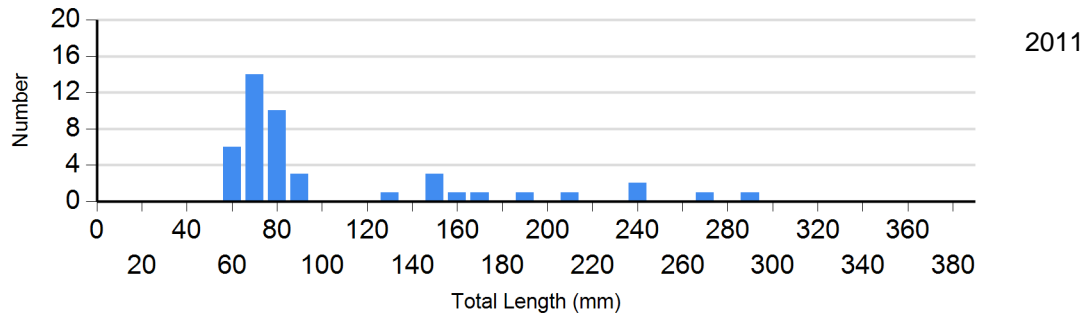
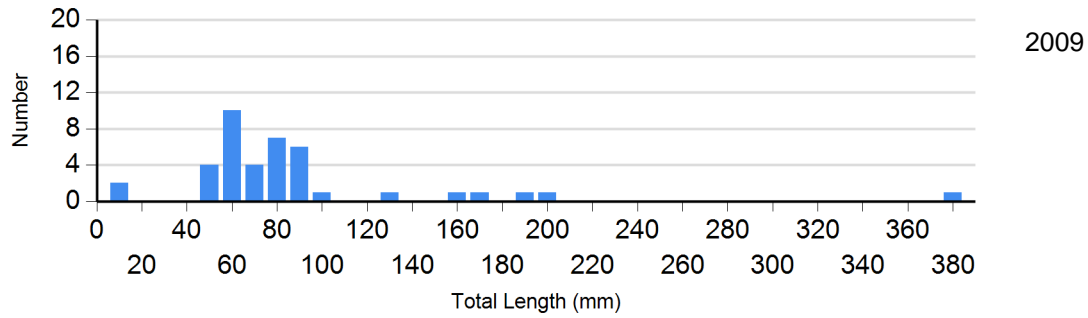
Site: 131  
Species: Mountain Sucker



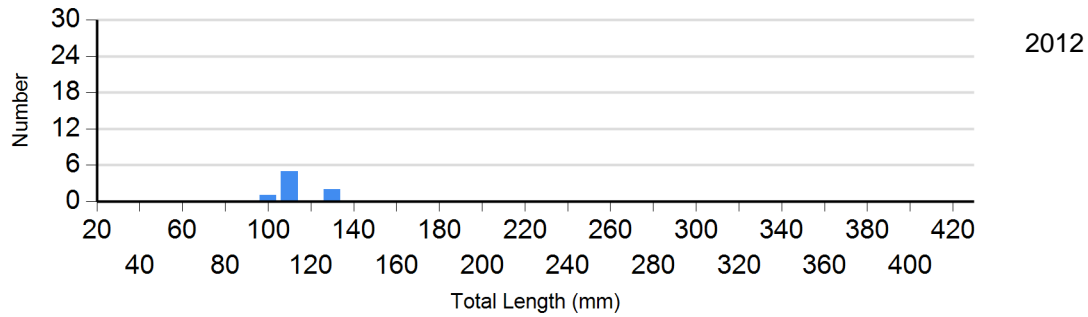
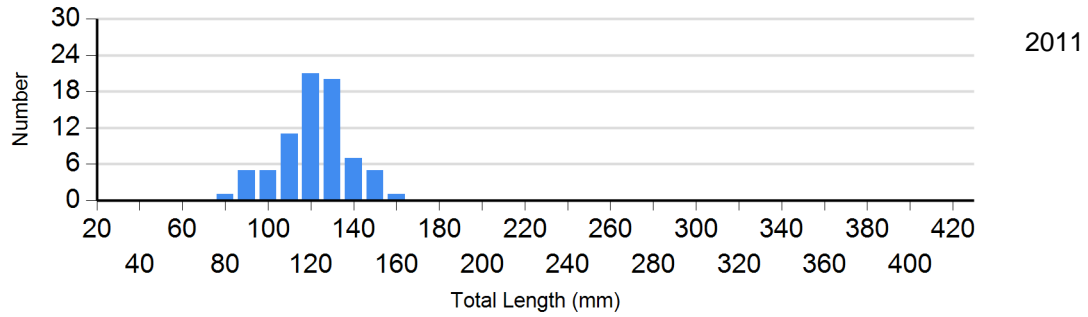
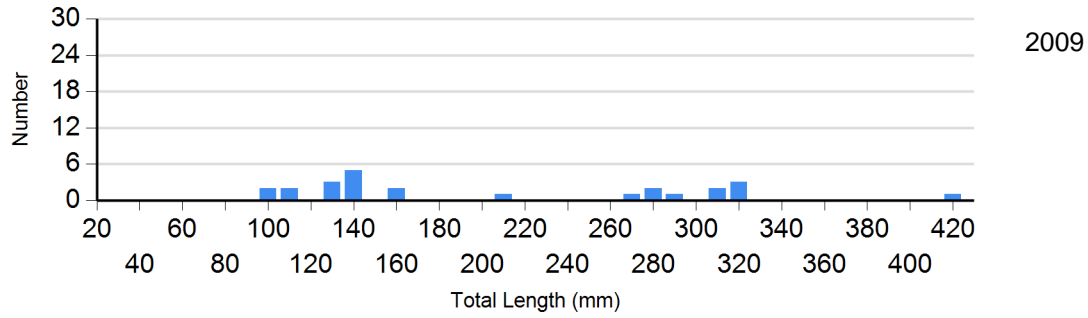
Site: 131  
Species: Stone Cat



Site: 131  
Species: White Sucker

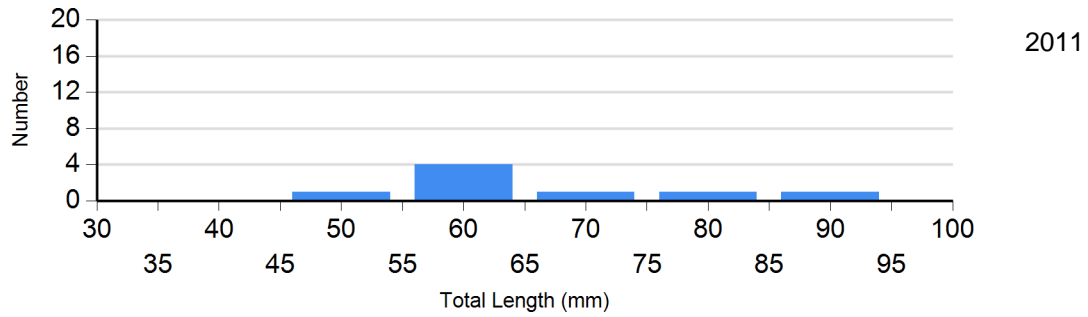
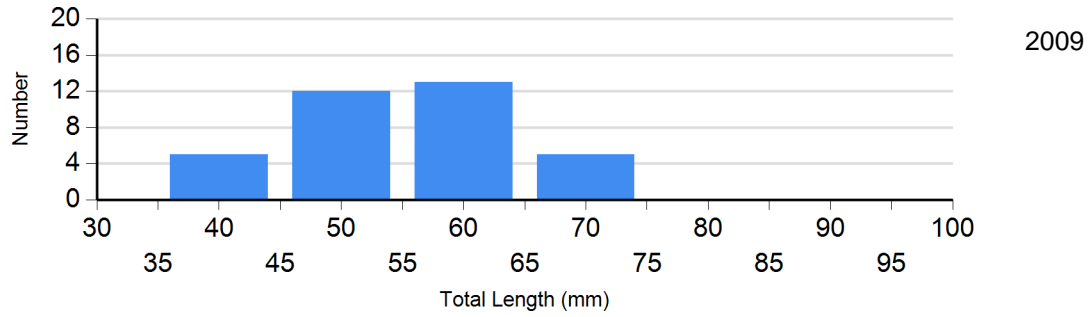


Site: 295  
Species: Brown Trout

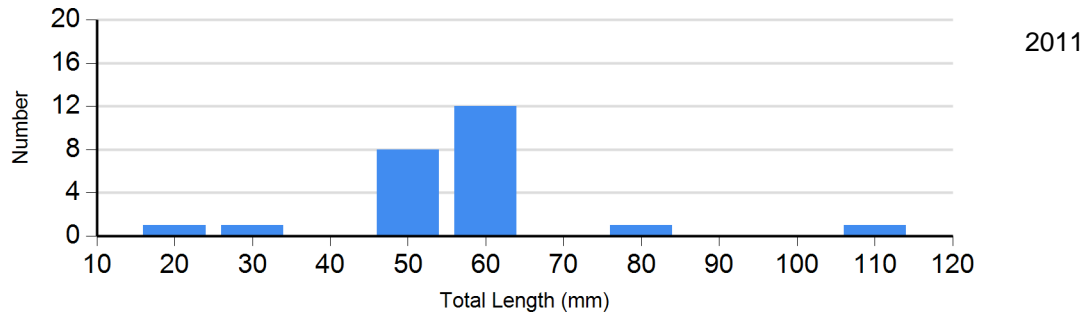




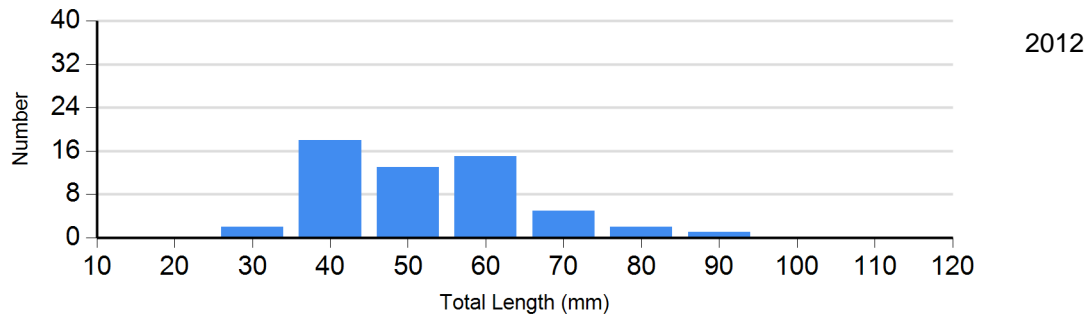
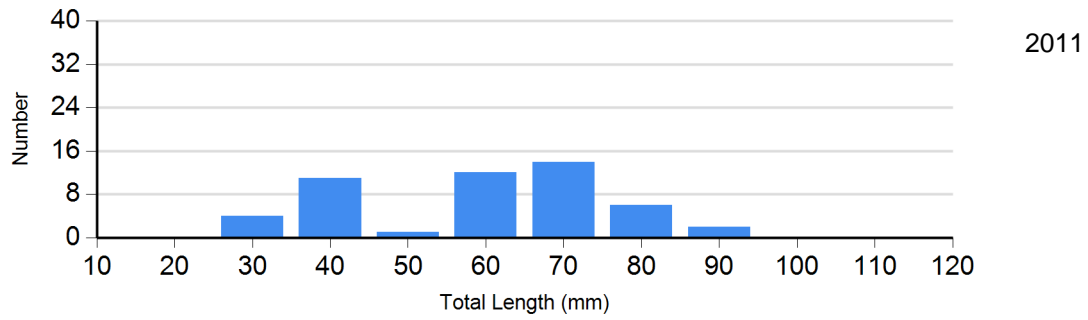
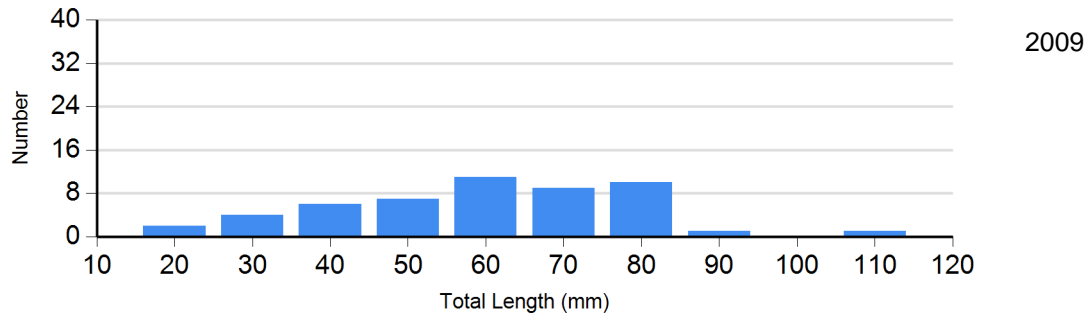
**Site:** 295  
**Species:** Creek Chub



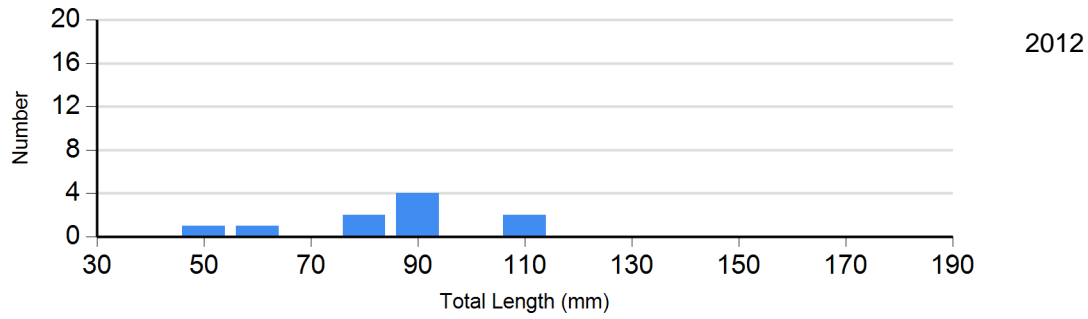
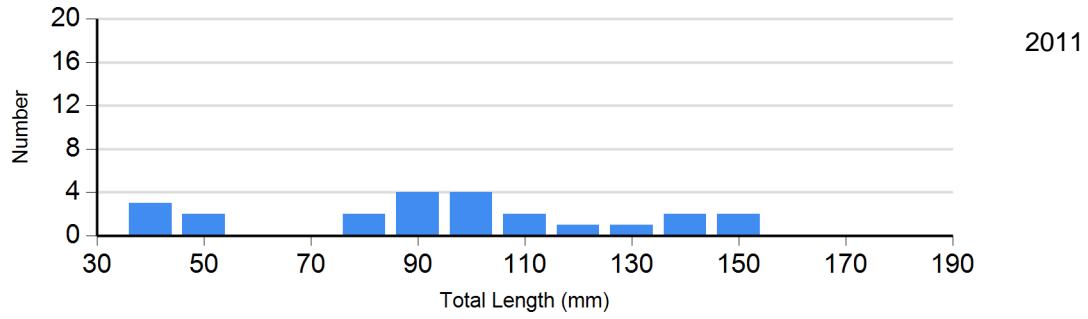
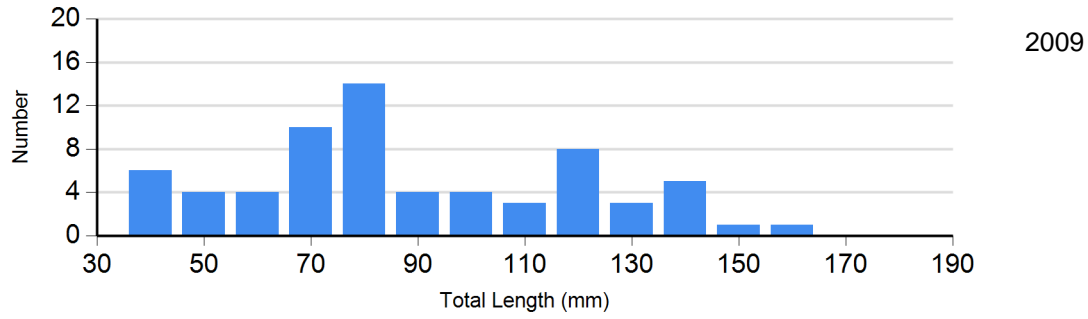
**Site:** 295  
**Species:** Fathead Minnow



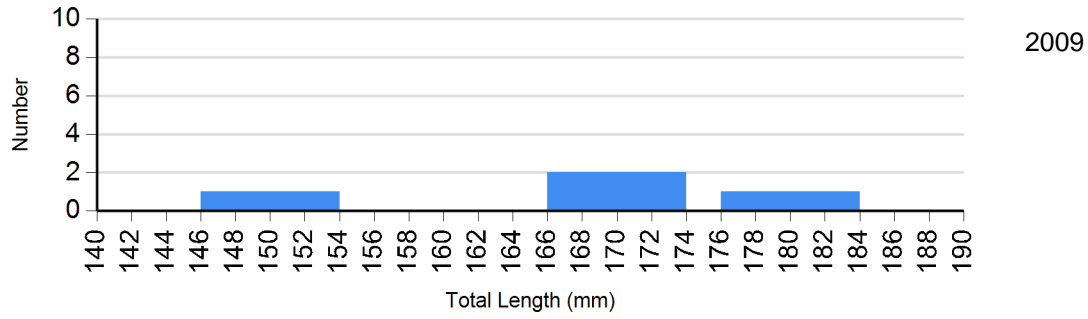
Site: 295  
Species: Longnose Dace



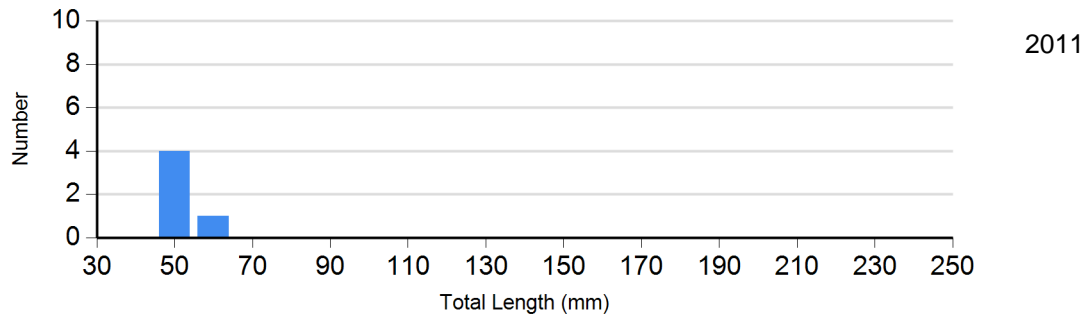
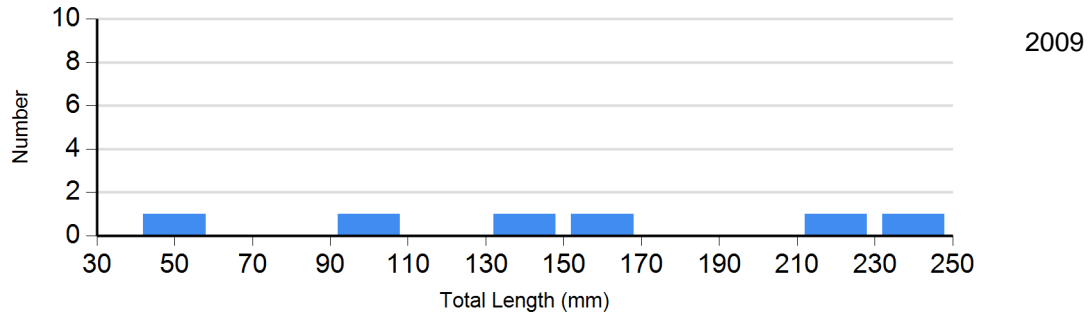
Site: 295  
Species: Mountain Sucker

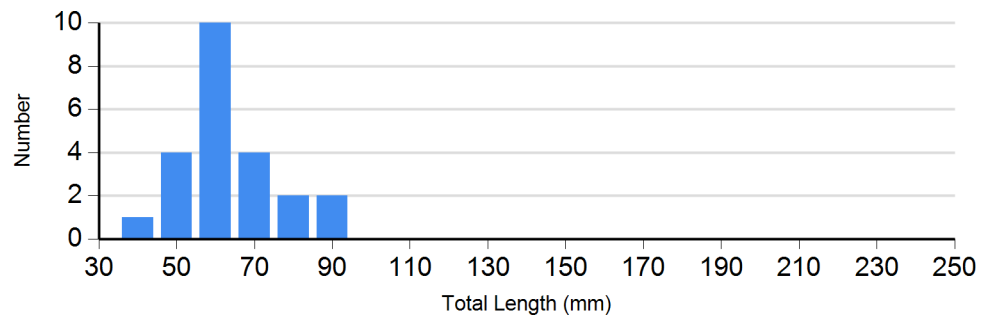


Site: 295  
Species: Stone Cat



Site: 295  
Species: White Sucker





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