

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Castle Creek, Pennington County**  
**02-0071-00**  
**1995**

Table 1. Population and Biomass Estimates for Castle Creek

<b>Site Number:</b> 356	<b>Date Sampled:</b> 09/06/1995	<b>Conductivity (umhos/cm):</b> 255
<b>Site Midpoint (Latitude, Longitude):</b> 44.05717425, -103.76307493	<b>Site Length (m):</b> 107	<b>pH:</b> 8.6
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 3.6	<b>Water Temperature (C):</b> 10.0
<b>Stream Classification:</b> BK2, BR1	<b>Number of Pass:</b> 3	<b>Voltage:</b> 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	50	50	52	50	1397	57	467	566	50.48	752	157.8	40.5
Brook Trout	>=200mm	7	7	8	7	196	21	65	79	18.81	105	217.6	107.7
Brook Trout	All	57	57	59	57	1592	78	533	645	69.28	857	165.1	48.7
Brown Trout	<200mm	21	21	22	21	587	22	196	238	19.90	316	153.6	38.0
Brown Trout	>=200mm	30	30	30	30	838	117	280	339	104.50	451	235.9	139.7
Brown Trout	All	51	51	52	51	1425	139	477	577	124.40	767	202.0	97.8
Unidentified YOY Trout	<200mm	26	27	30	26	754	4	252	305	3.13	406	79.0	4.7
Unidentified YOY Trout	All	26	27	30	26	754	4	252	305	3.13	406	79.0	4.7

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<b>Site Number:</b> 384	<b>Date Sampled:</b> 09/05/1995	<b>Conductivity (umhos/cm):</b> 270
<b>Site Midpoint (Latitude, Longitude):</b> 44.04396904, -103.77363060	<b>Site Length (m):</b> 137	<b>pH:</b> 8.8
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 4.2	<b>Water Temperature (C):</b> 14.0
<b>Stream Classification:</b> BK1, BR1	<b>Number of Pass:</b> 3	<b>Voltage:</b> 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	59	60	63	59	1435	68	438	581	60.95	705	160.7	47.6
Brook Trout	>=200mm	30	30	31	30	718	95	219	291	84.42	352	224.6	131.7
Brook Trout	All	89	90	93	89	2153	163	657	872	145.98	1057	182.2	75.9
Brown Trout	<200mm	6	6	8	6	144	6	44	58	5.28	70	155.5	41.2
Brown Trout	>=200mm	43	43	45	43	1029	263	314	417	234.65	505	280.6	255.5
Brown Trout	All	49	50	53	49	1196	274	365	484	244.82	587	265.3	229.2
Hatchery Brown Trout	>=200mm	12	12	12	12	287	101	88	116	89.91	141	314.3	350.8
Hatchery Brown Trout	All	12	12	12	12	287	101	88	116	89.91	141	314.3	350.8
Splake Trout	>=200mm	1	1	1	1	24	14	7	10	12.22	12	415.0	572.0
Splake Trout	All	1	1	1	1	24	14	7	10	12.22	12	415.0	572.0

Site Number: 388

Site Midpoint (Latitude, Longitude): 44.04338453, -103.77130517

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK1, BR1

Date Sampled: 09/05/1995

Site Length (m): 99

Mean Width (m): 4.1

Number of Pass: 3

Conductivity (umhos/cm): 300

pH: 9.0

Water Temperature (C): 18.0

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)
Brook Trout	<200mm	63	69	78	63	1675	70	697	678	62.71	1121	148.4	41.9
Brook Trout	>=200mm	35	35	36	35	850	124	354	344	110.70	569	234.5	145.9
Brook Trout	All	98	102	108	98	2476	196	1030	1003	174.81	1658	179.1	79.1
Brown Trout	<200mm	2	2	2	2	49	2	20	20	1.67	33	154.5	38.5
Brown Trout	>=200mm	25	26	30	25	631	164	263	256	146.18	423	278.7	259.4
Brown Trout	All	27	28	31	27	680	165	283	275	147.50	455	269.5	243.1

Hatchery Brown Trout	>=200mm	8	8	10	8	194	72	81	79	63.91	130	316.3	368.6
Hatchery Brown Trout	All	8	8	10	8	194	72	81	79	63.91	130	316.3	368.6

Site Number: 411

Site Midpoint (Latitude, Longitude): 44.03210666, -103.77970750

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BK2, BR0

Date Sampled: 09/06/1995

Site Length (m): 100

Mean Width (m): 4.8

Number of Pass: 3

Conductivity (umhos/cm): 270

pH: 8.5

Water Temperature (C): 11.0

Voltage: 300

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	50	59	73	50	1239	25	590	502	22.67	949	105.6	20.5
Brook Trout	>=200mm	10	10	10	10	210	52	100	85	46.65	161	266.2	248.7
Brook Trout	All	60	67	77	60	1408	82	670	570	73.54	1078	132.4	58.5
Brown Trout	<200mm	3	3	3	3	63	3	30	26	2.27	48	152.0	40.3
Brown Trout	All	3	3	3	3	63	3	30	26	2.27	48	152.0	40.3

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	
<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 Castle Creek, 1985-1995

**Site 356**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brook Trout <200mm	Oct 16, 1992	71	71-72	
	Oct 13, 1993	80	71-92	
	Nov 08, 1994	167	165-171	
	Sep 06, 1995	50	50-52	
Brook Trout >=200mm	Oct 16, 1992	3	3-3	BK2
	Oct 13, 1993	5	5-5	BK2
	Nov 08, 1994	7	7-7	BK2

Brook Trout >=200mm	Sep 06, 1995	7	7-8	BK2
Brown Trout <200mm	Oct 16, 1992	86	84-90	
	Oct 13, 1993	58	57-61	
	Nov 08, 1994	59	59-61	
	Sep 06, 1995	21	21-22	
Brown Trout >=200mm	Oct 16, 1992	23	23-24	BR1
	Oct 13, 1993	25	25-25	BR1
	Nov 08, 1994	24	24-24	BR1
	Sep 06, 1995	30	30-30	BR1
Hatchery Brown Trout >=200mm	Oct 13, 1993	1	1-2	

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**Site 384**


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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Trout <200mm	Oct 14, 1992	127	109-146	
	Oct 12, 1993	87	84-92	
	Nov 07, 1994	81	81-83	
	Sep 05, 1995	60	59-63	

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Brook Trout >=200mm	Oct 14, 1992	11	11-12	BK2
	Oct 12, 1993	21	21-21	BK1
	Nov 07, 1994	12	12-13	BK2
	Sep 05, 1995	30	30-31	BK1
Brown Trout <200mm	Oct 14, 1992	13	13-14	
	Oct 12, 1993	38	37-41	
	Nov 07, 1994	10	10-10	
	Sep 05, 1995	6	6-8	
Brown Trout >=200mm	Oct 14, 1992	34	32-39	BR1
	Oct 12, 1993	29	29-30	BR1
	Nov 07, 1994	47	43-55	BR1
	Sep 05, 1995	43	43-45	BR1
Hatchery Brown Trout >=200mm	Sep 05, 1995	12	12-12	
Splake Trout >=200mm	Sep 05, 1995	1	1-1	

<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Trout <200mm	Oct 14, 1992	26	26-27	
	Oct 12, 1993	58	53-66	
	Nov 07, 1994	67	67-68	
	Sep 05, 1995	69	63-78	
Brook Trout >=200mm	Oct 14, 1992	16	12-30	BK2
	Oct 12, 1993	14	14-15	BK2
	Nov 07, 1994	34	34-35	BK1
	Sep 05, 1995	35	35-36	BK1
Brown Trout <200mm	Oct 14, 1992	10	10-10	
	Oct 12, 1993	17	17-19	
	Nov 07, 1994	10	10-10	
	Sep 05, 1995	2	2-2	
Brown Trout >=200mm	Oct 14, 1992	27	27-28	BR1
	Oct 12, 1993	33	33-35	BR1
	Nov 07, 1994	31	31-32	BR1

Brown Trout >=200mm	Sep 05, 1995	26	25-30	BR1
Hatchery Brown Trout >=200mm	Sep 05, 1995	8	8-10	

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**Site 411**

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<b>Species/Size</b>	<b>Date</b>	<b>Pop Est.</b>	<b>(95% C.I.)</b>	<b>Stream Classification</b>
Brook Trout <200mm	Sep 06, 1995	59	50-73	
Brook Trout >=200mm	Sep 06, 1995	10	10-10	BK2
Brown Trout <200mm	Sep 06, 1995	3	3-3	

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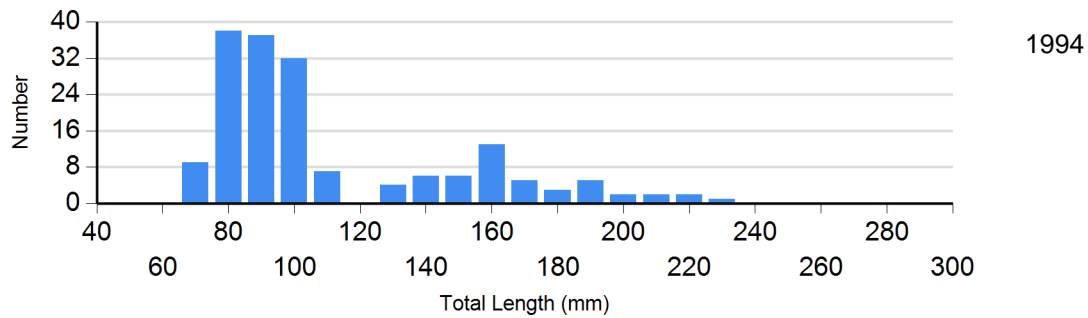
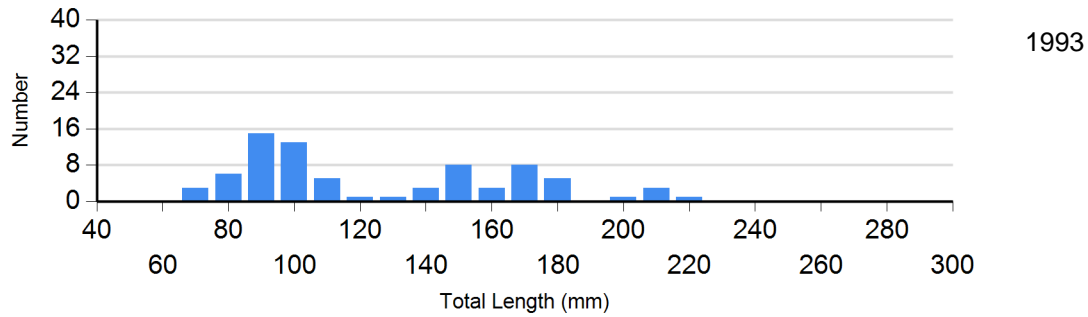
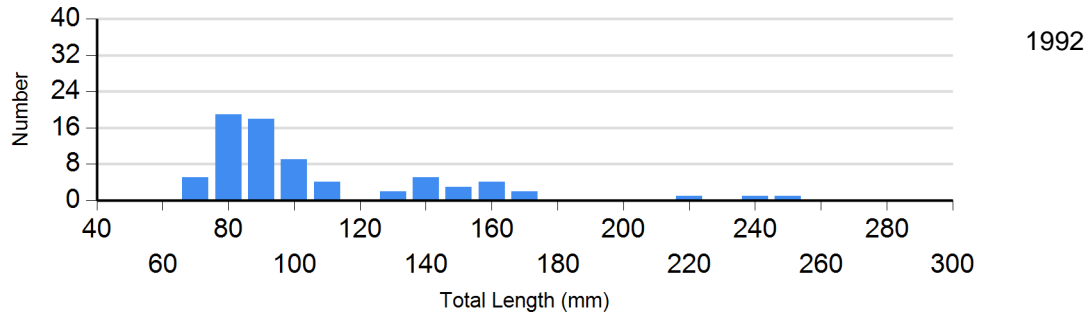


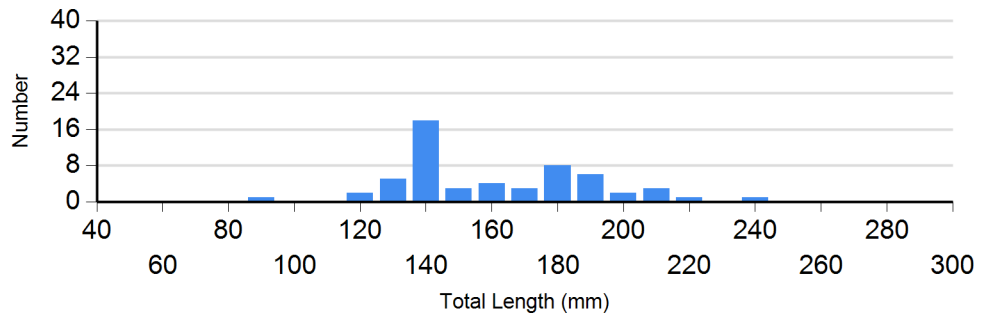
## Length Frequency Distribution

Length frequency histogram of species sampled by year.

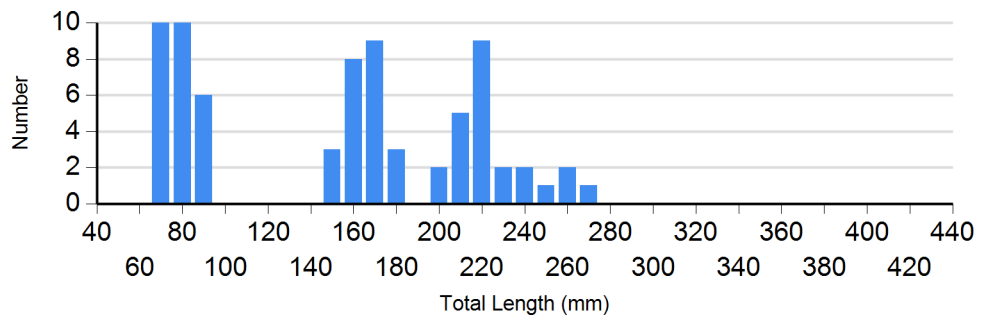
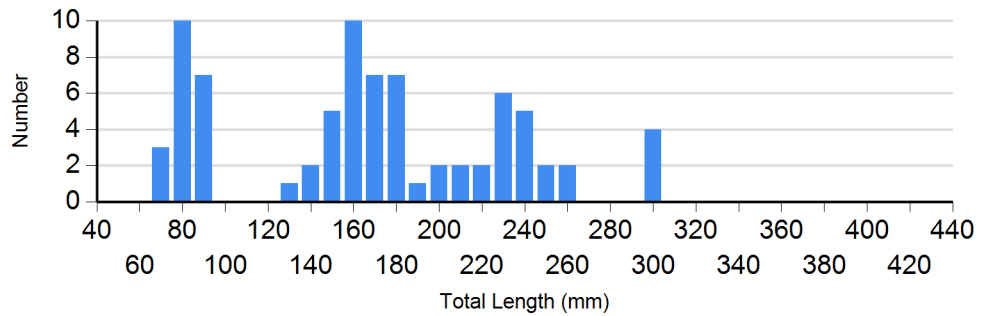
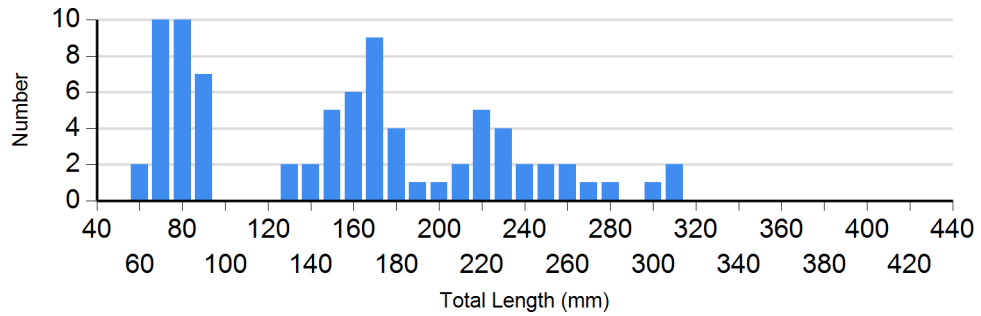
**Site:** 356

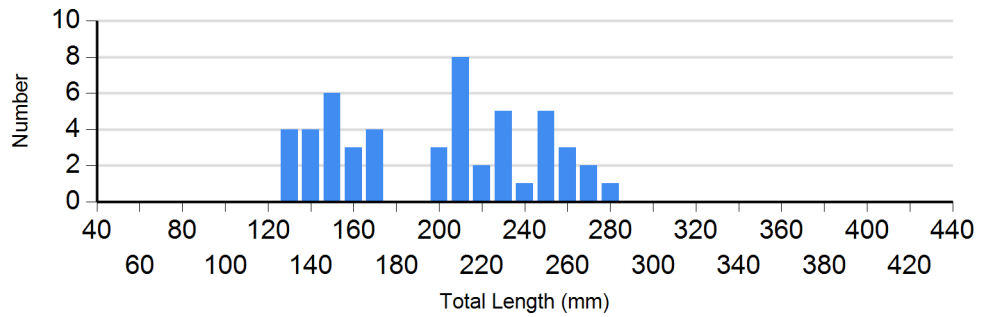
**Species:** Brook Trout



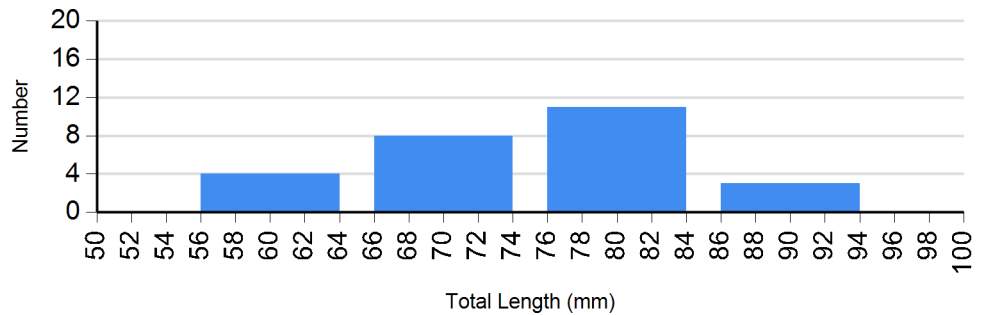


Site: 356  
Species: Brown Trout

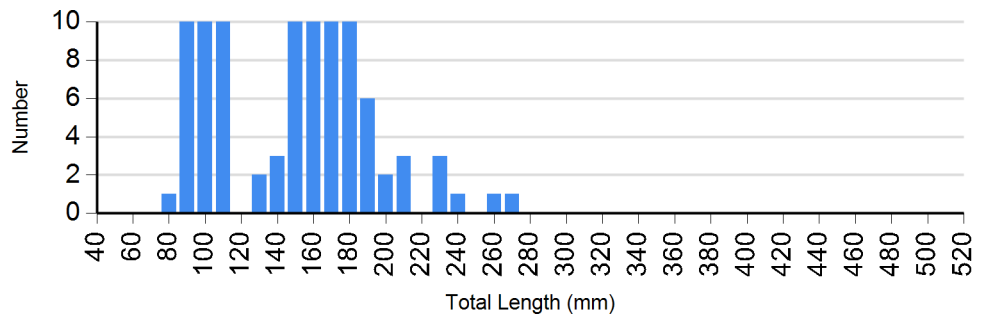


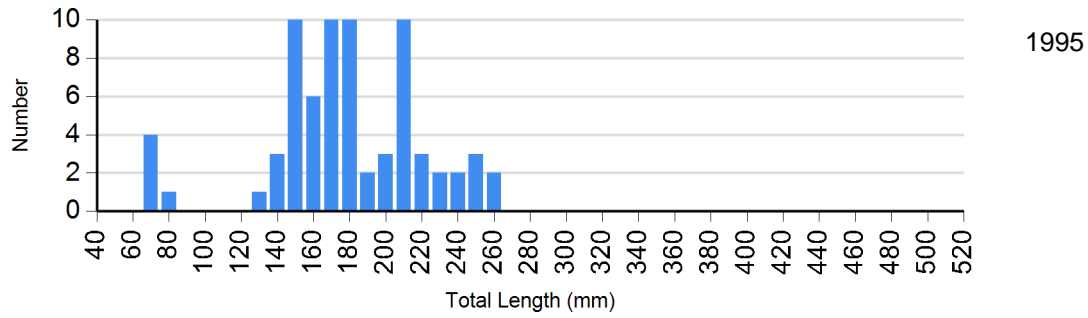
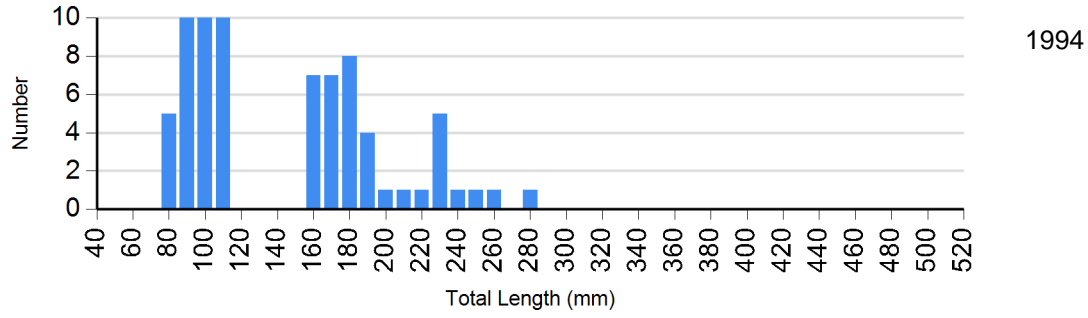
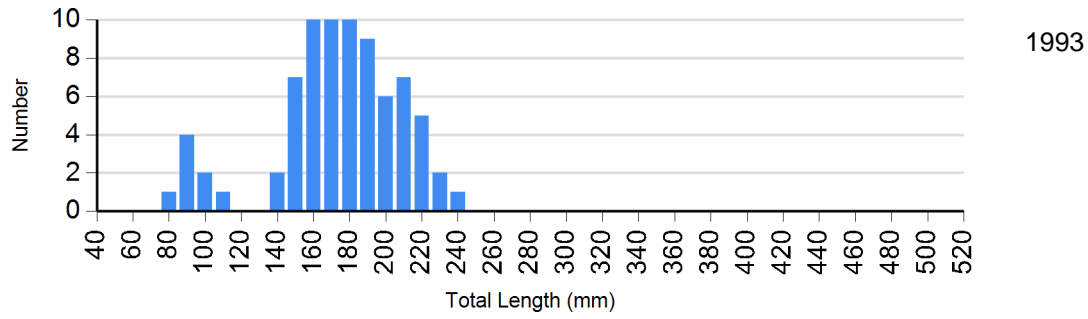


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**Species:** Unidentified YOY Trout

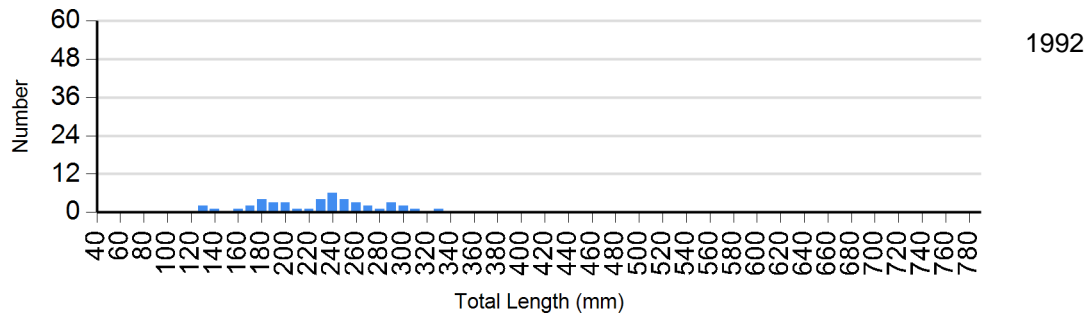


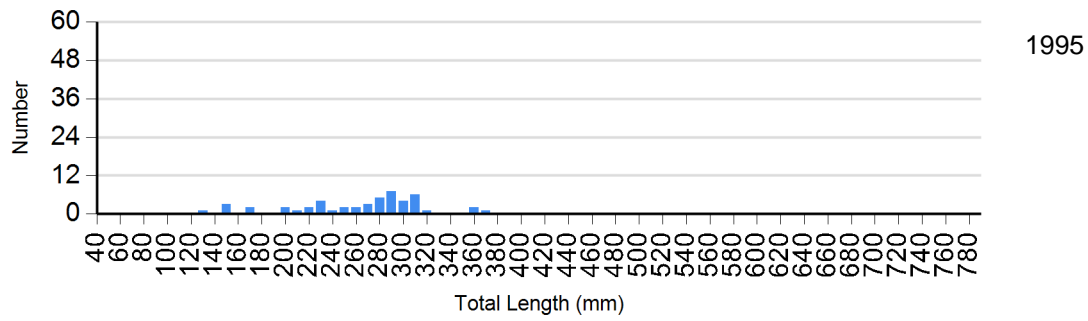
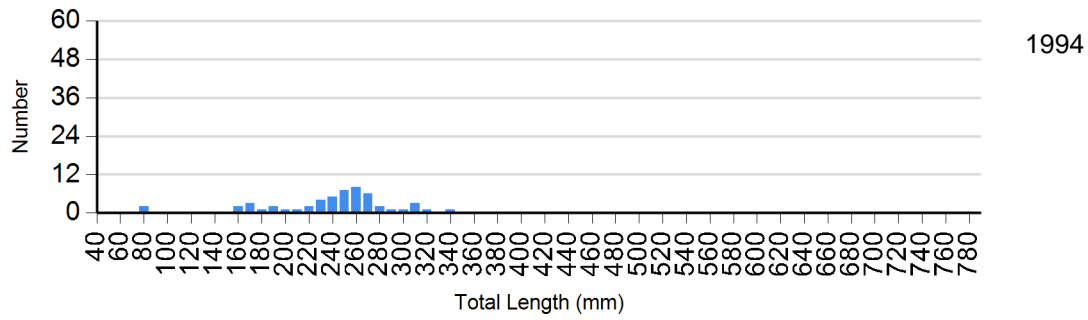
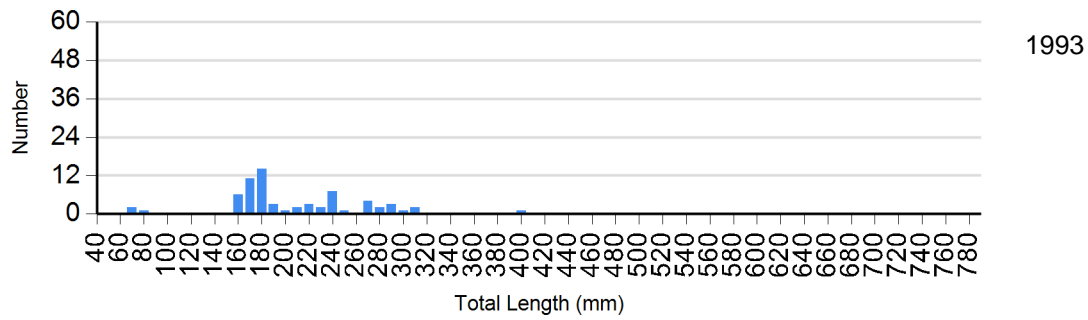
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**Species:** Brook Trout



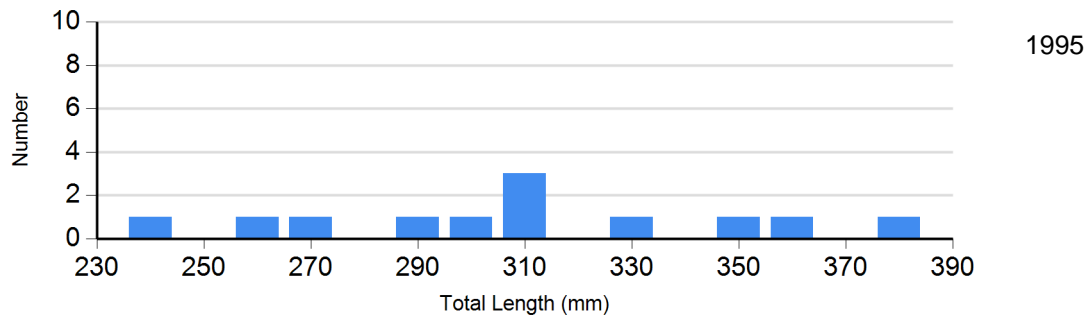


Site: 384  
Species: Brown Trout

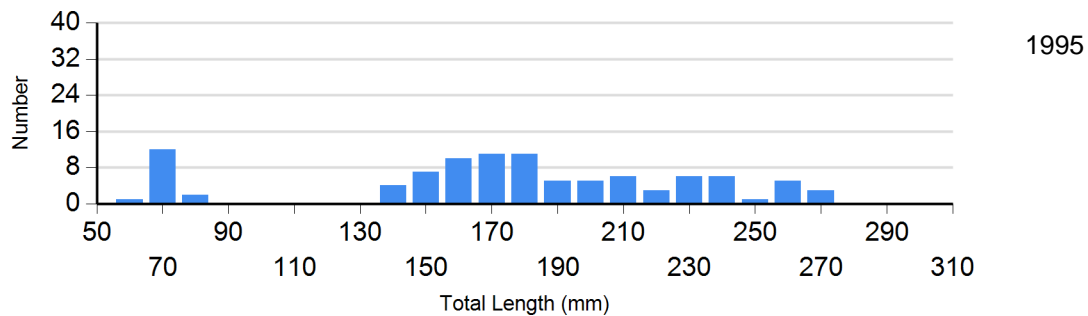
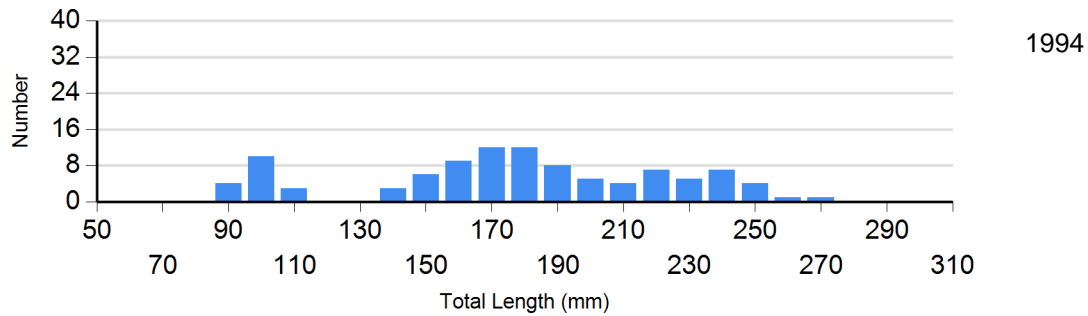
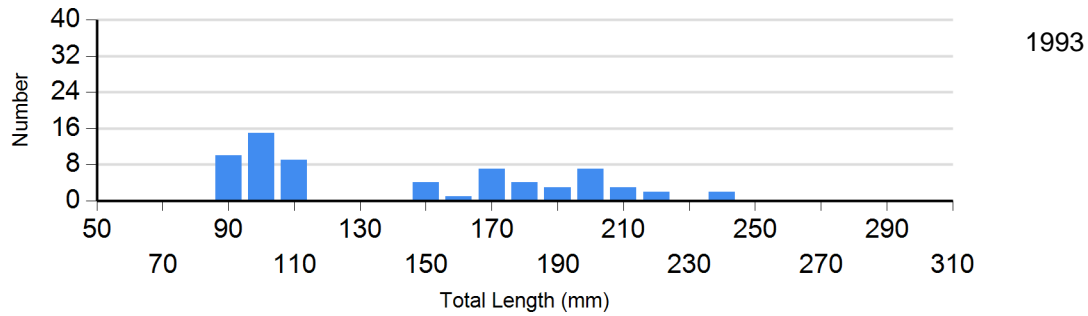
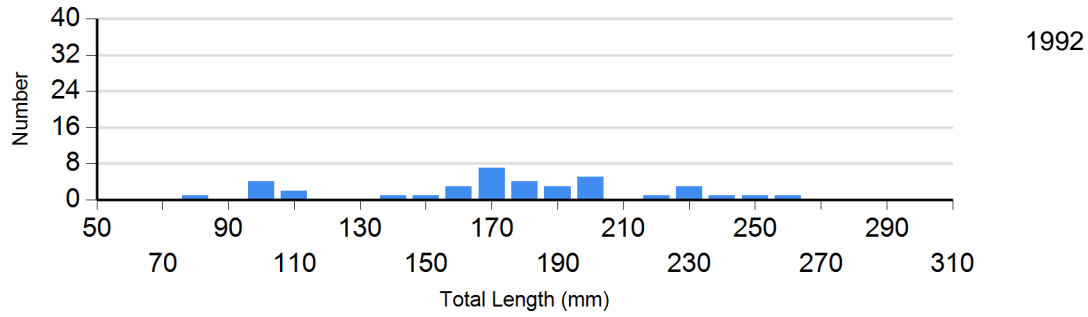




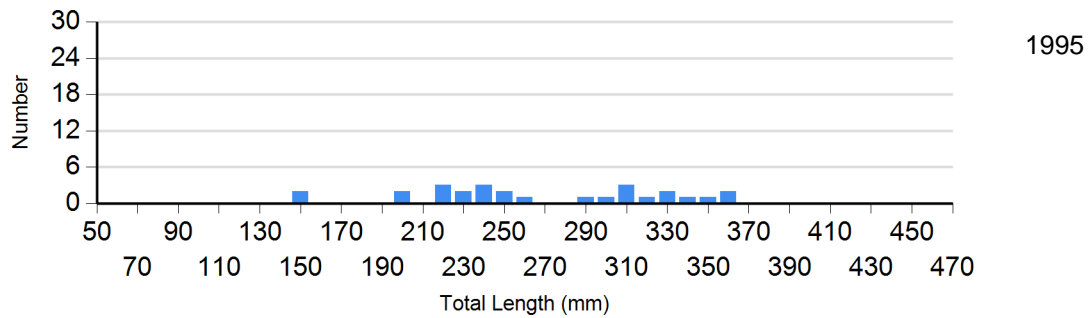
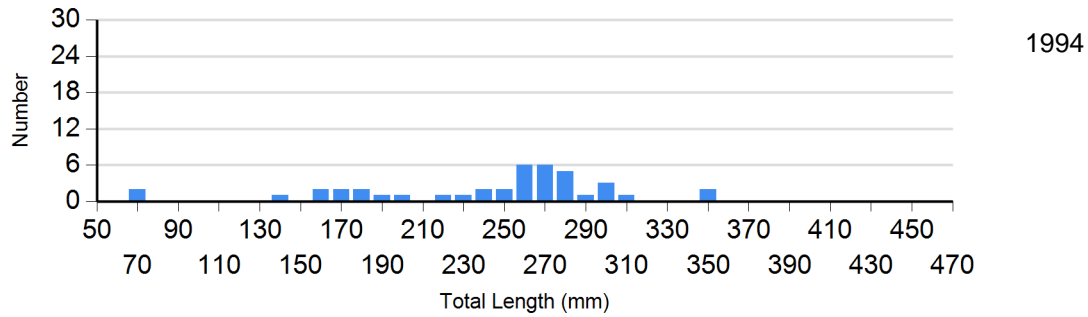
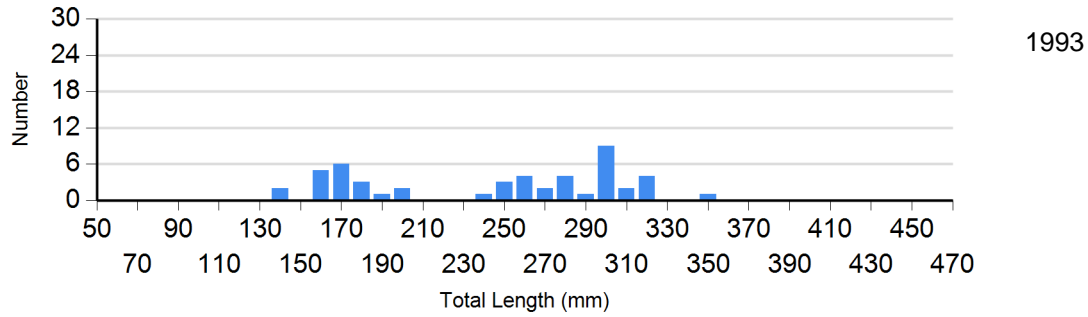
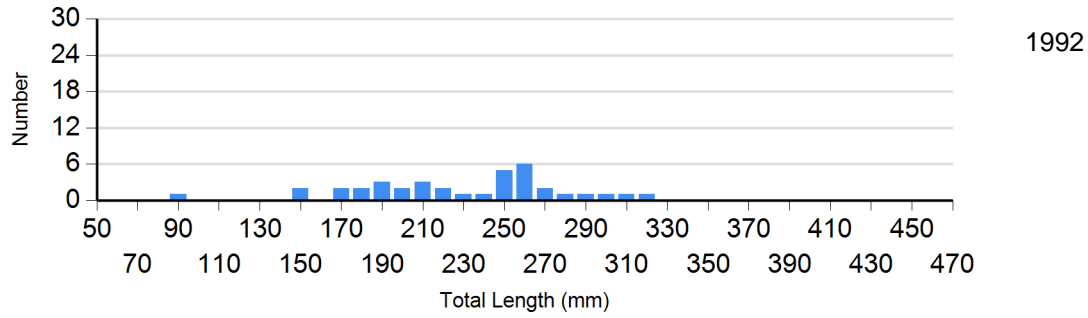
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**Species:** Hatchery Brown Trout



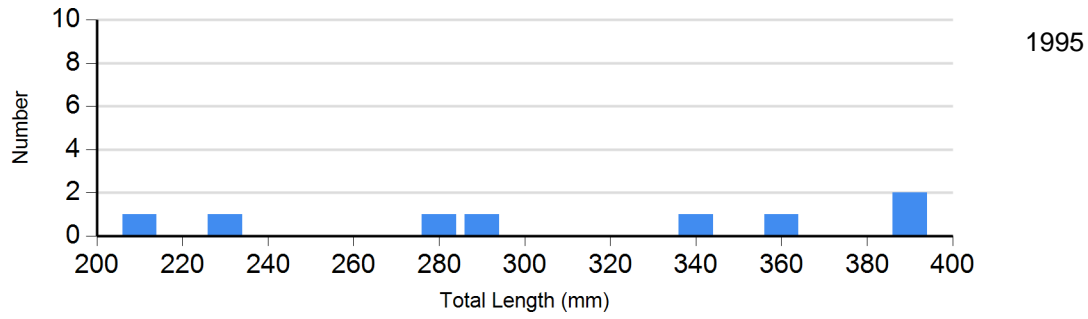
Site: 388  
Species: Brook Trout



Site: 388  
Species: Brown Trout



**Site:** 388  
**Species:** Hatchery Brown Trout



**Site:** 411  
**Species:** Brook Trout

