

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**Spearfish Creek, Lawrence County**  
**09-0021-00**  
**2007**

Table 1. Population and Biomass Estimates for Spearfish Creek

<b>Site Number:</b> 190	<b>Date Sampled:</b> 09/19/2007	<b>Conductivity (umhos/cm):</b>
<b>Site Midpoint (Latitude, Longitude):</b> 44.48929462, -103.86435821	<b>Site Length (m):</b> 100	<b>pH:</b> 8.7
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 6.9	<b>Water Temperature (C):</b> 10.7
<b>Stream Classification:</b> 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)
Brown Trout	<200mm	57	59	63	57	861	30	590	349	26.48	949	138.5	34.5
Brown Trout	>=200mm	65	66	69	65	963	221	660	390	197.22	1062	284.5	229.4
Brown Trout	All	123	127	133	123	1853	256	1270	750	228.82	2043	216.3	138.3

<b>Site Number:</b> 340	<b>Date Sampled:</b> 09/18/2007	<b>Conductivity (umhos/cm):</b> 325
<b>Site Midpoint (Latitude, Longitude):</b> 44.40182261, -103.89476328	<b>Site Length (m):</b> 100	<b>pH:</b> 8.4
<b>Survey Completed by:</b> South Dakota Game, Fish and Parks	<b>Mean Width (m):</b> 9.1	<b>Water Temperature (C):</b> 11.5
<b>Stream Classification:</b> BK0, BR1, RB1	<b>Number of Pass:</b> 3	<b>Voltage:</b> 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	4	4	5	4	44	1	40	18	0.71	64	109.3	18.3
Brook Trout	All	4	4	5	4	44	1	40	18	0.71	64	109.3	18.3
Brown Trout	<200mm	69	78	90	69	853	26	780	345	23.65	1255	130.2	31.1
Brown Trout	>=200mm	35	35	36	35	383	63	350	155	56.05	563	244.9	164.0
Brown Trout	All	104	109	116	104	1192	89	1090	483	79.76	1754	168.8	75.0
Rainbow Trout	<200mm	86	89	94	86	973	51	890	394	45.95	1432	159.9	52.9

Rainbow Trout	>=200mm	20	20	20	20	219	36	200	89	32.56	322	245.8	166.8
Rainbow Trout	All	107	109	113	107	1192	89	1090	483	79.36	1754	176.1	74.6

**Site Number:** 418

**Site Midpoint (Latitude, Longitude):** 44.36357703, -103.92915307

**Survey Completed by:** South Dakota Game, Fish and Parks

**Stream Classification:** BR1

**Date Sampled:** 09/19/2007

**Site Length (m):** 110

**Mean Width (m):** 7.6

**Number of Pass:** 3

**Conductivity (umhos/cm):**

**pH:** 8.6

**Water Temperature (C):** 10.4

**Voltage:** 225

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	266	288	304	272	3786	83	2618	1533	73.87	4213	112.7	21.8
Brown Trout	>=200mm	73	75	79	73	986	118	682	399	105.55	1097	227.5	119.9
Brown Trout	All	339	363	379	347	4772	204	3300	1933	182.09	5310	137.4	42.7

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 Spearfish Creek, 1997-2007

**Site 190**

Species/Size	Date	Pop Est.	(95% C.I.)	Stream Classification
Brown Trout <200mm	Oct 14, 1998	92	83-103	
	Oct 26, 1999	31	30-34	
	Oct 07, 2004	15	15-16	
	Sep 11, 2006	53	53-55	
	Sep 19, 2007	59	57-63	
Brown Trout >=200mm	Oct 14, 1998	219	207-231	BR1
	Oct 26, 1999	144	129-159	BR1

Brown Trout >=200mm	Oct 07, 2004	130	129-133	BR1
	Sep 11, 2006	47	47-48	BR1
	Sep 19, 2007	66	65-69	BR1

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**Site 340**

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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 22, 2001	2	2-4	
	Sep 11, 2006	3	3-4	
	Sep 18, 2007	4	4-5	
Brook Trout >=200mm	Sep 11, 2006	1	1-5	BK3
Brown Trout <200mm	Oct 25, 1999	116	76-171	
	Oct 23, 2000	162	140-184	
	Oct 22, 2001	78	72-87	
	Oct 31, 2002	142	90-209	
	Sep 22, 2003	57	50-68	
	Oct 05, 2004	102	67-153	
	Sep 11, 2006	54	54-56	

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Brown Trout <200mm	Sep 18, 2007	78	69-90	
Brown Trout >=200mm	Oct 25, 1999	98	85-113	BR1
	Oct 23, 2000	114	105-125	BR1
	Oct 22, 2001	127	126-130	BR1
	Oct 31, 2002	107	104-112	BR1
	Sep 22, 2003	77	77-79	BR1
	Oct 05, 2004	34	34-35	BR2
	Sep 11, 2006	34	34-35	BR1
	Sep 18, 2007	35	35-36	BR1
Rainbow Trout <200mm	Oct 25, 1999	22	15-44	
	Oct 23, 2000	37	35-42	
	Oct 22, 2001	43	41-48	
	Oct 31, 2002	18	13-35	
	Sep 22, 2003	220	215-226	
	Oct 05, 2004	265	237-293	
	Sep 11, 2006	114	113-117	

Rainbow Trout <200mm	Sep 18, 2007	89	86-94	
Rainbow Trout >=200mm	Oct 25, 1999	39	37-44	RB1
	Oct 23, 2000	46	40-57	RB1
	Oct 22, 2001	53	46-65	RB1
	Oct 31, 2002	63	61-67	RB1
	Sep 22, 2003	45	45-46	RB1
	Oct 05, 2004	36	36-37	RB1
	Sep 11, 2006	8	8-10	RB1
	Sep 18, 2007	20	20-20	RB1

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**Site 418**

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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 13, 2006	1	1-1	
Brook Trout >=200mm	Jun 17, 1998	1	1-1	BK3
Brown Trout <200mm	Jun 17, 1998	137	111-164	
	Oct 06, 2004	73	64-86	
	Sep 28, 2005	190	165-215	

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Brown Trout <200mm	Sep 13, 2006	265	229-301	
	Sep 19, 2007	288	272-304	
Brown Trout >=200mm	Jun 17, 1998	70	60-84	BR1
	Oct 06, 2004	117	114-122	BR1
	Sep 28, 2005	39	38-42	BR1
	Sep 13, 2006	42	36-53	BR1
	Sep 19, 2007	75	73-79	BR1
Rainbow Trout <200mm	Sep 13, 2006	2	2-4	

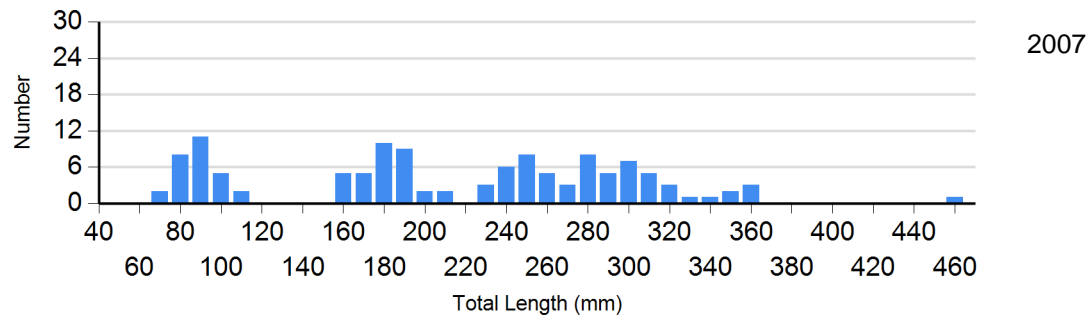
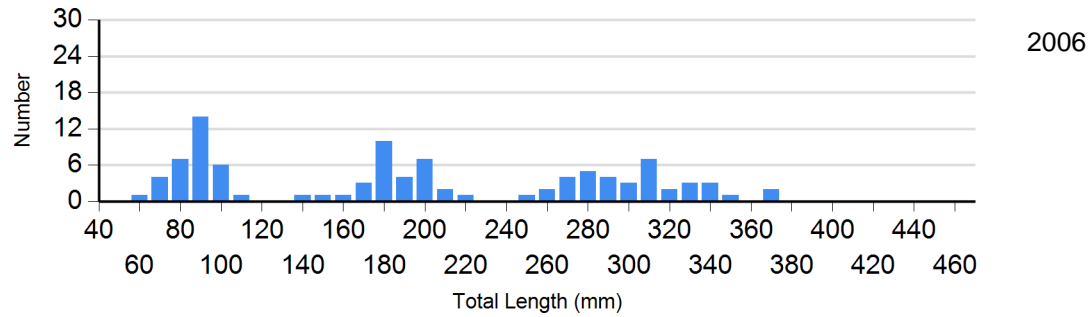
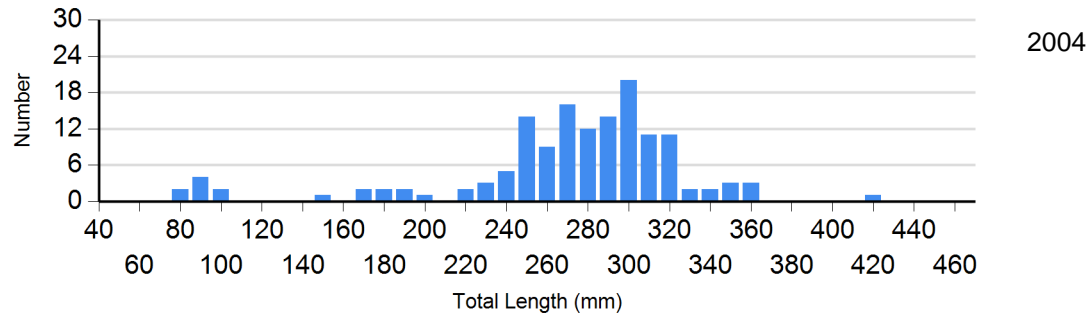
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## Length Frequency Distribution

Length frequency histogram of species sampled by year.

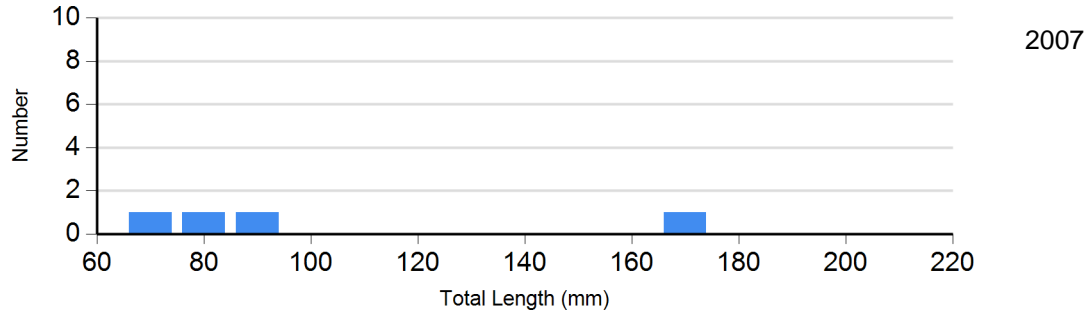
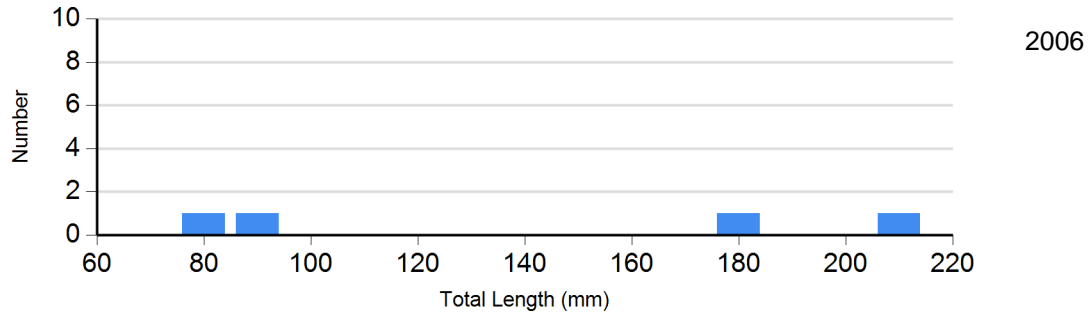
**Site:** 190

**Species:** Brown Trout

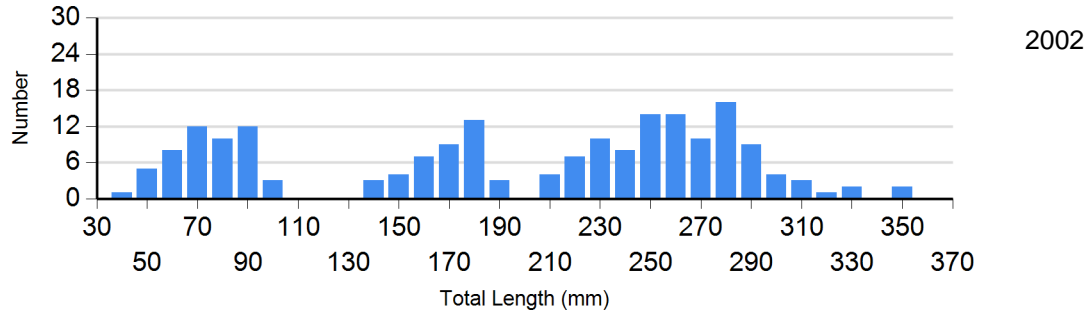


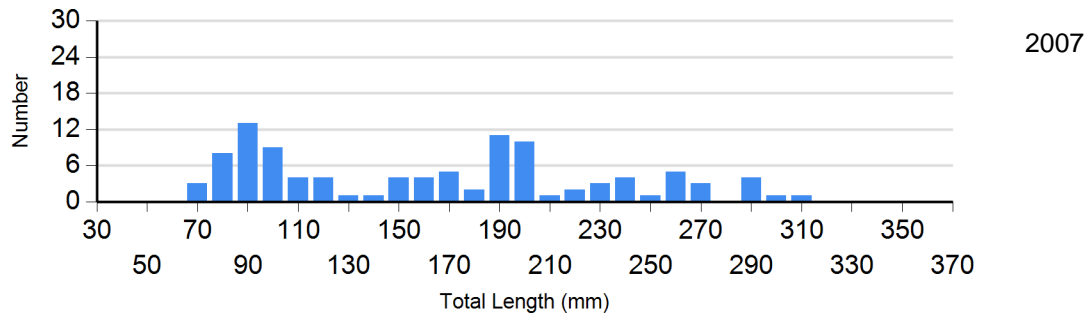
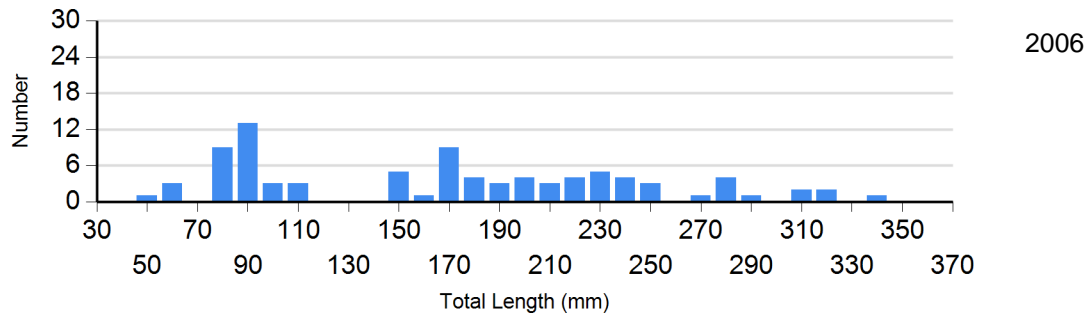
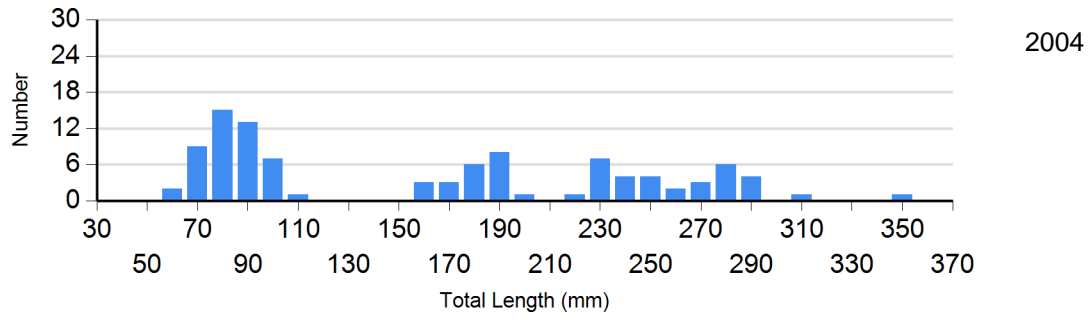
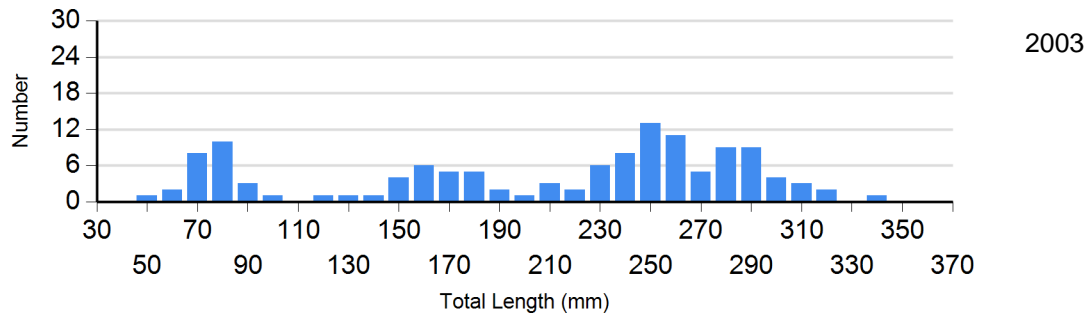


**Site: 340**  
**Species: Brook Trout**

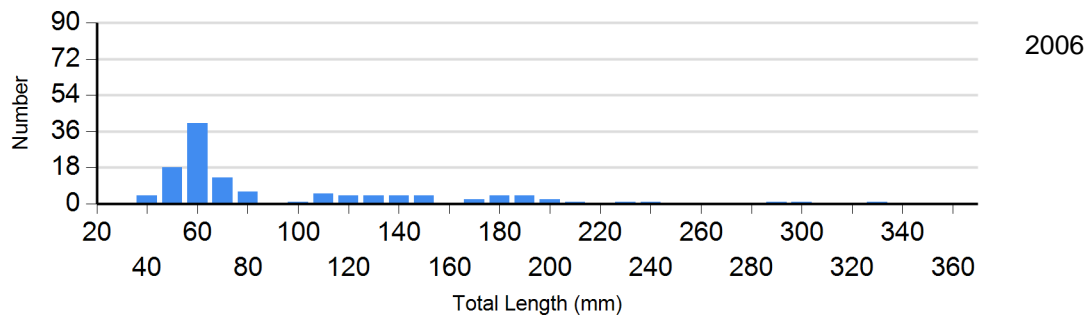
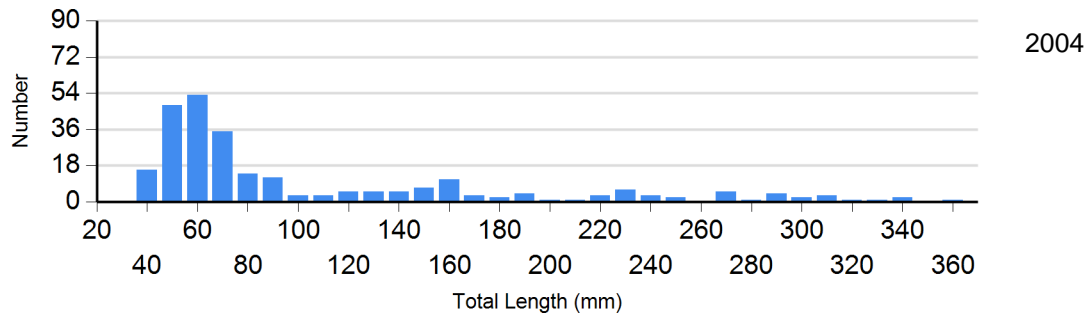
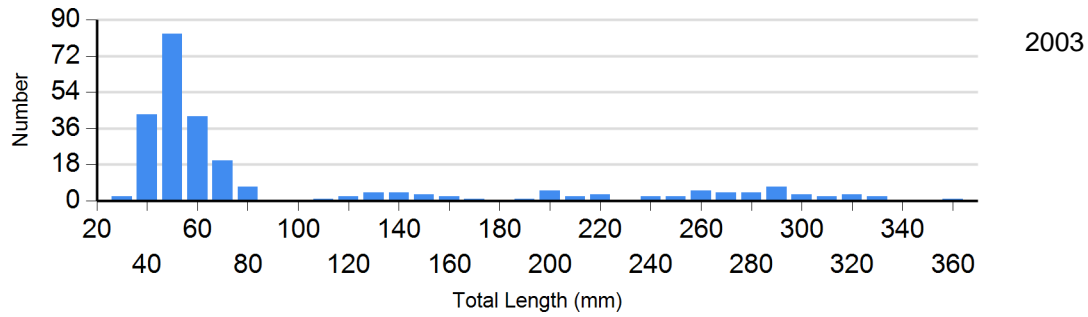
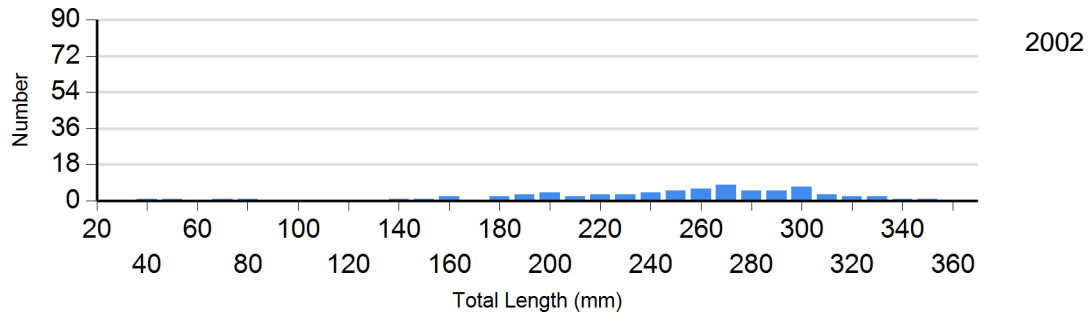


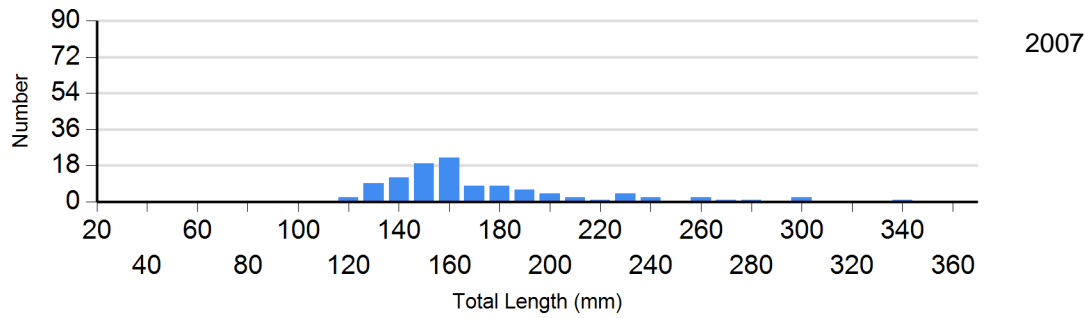
**Site: 340**  
**Species: Brown Trout**



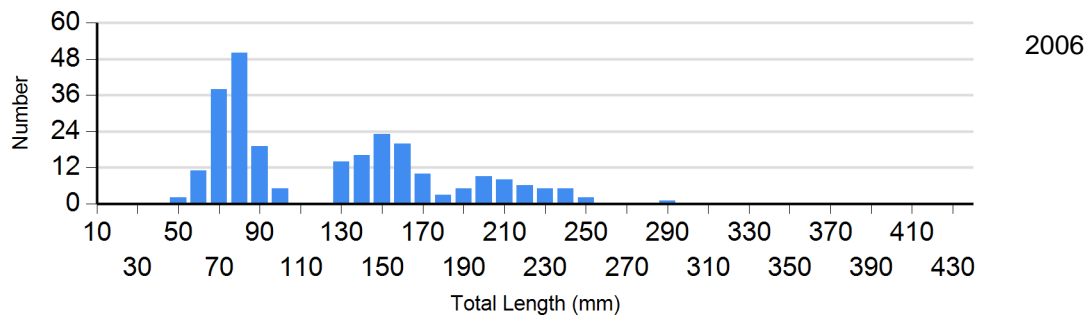
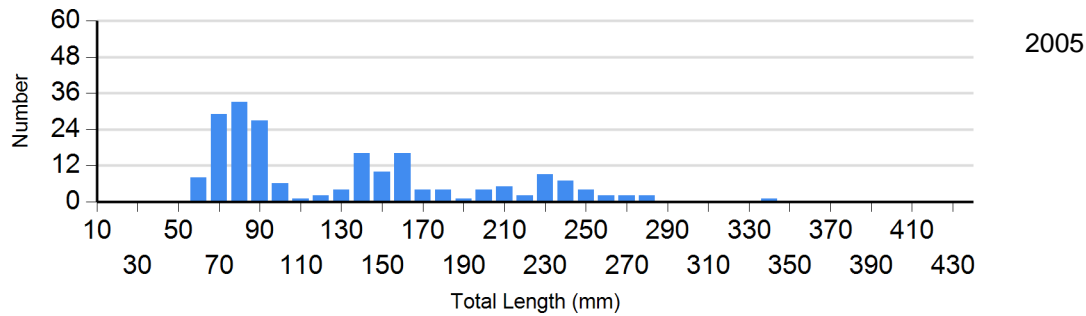
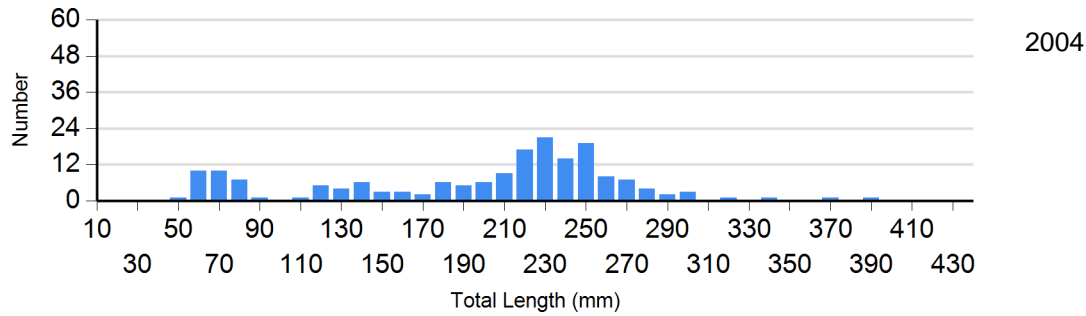


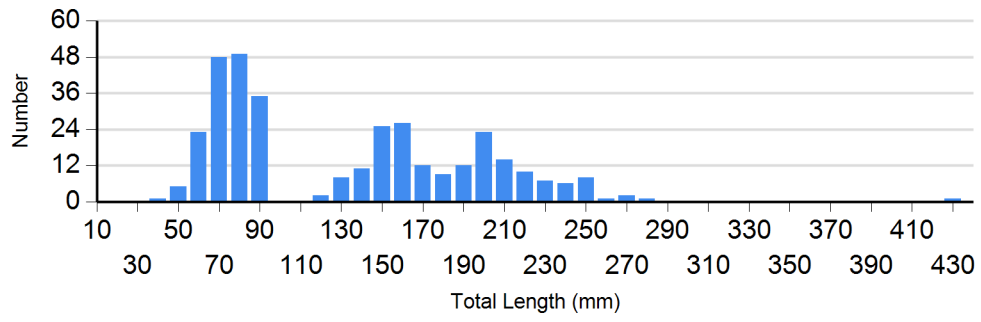
Site: 340  
Species: Rainbow Trout





Site: 418  
Species: Brown Trout





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