

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**French Creek, Custer County**  
**21-0017-00**  
**1994**

Table 1. Population and Biomass Estimates for French Creek

**Site Number:** 1062 **Date Sampled:** 07/18/1994 **Conductivity (umhos/cm):** 295  
**Site Midpoint (Latitude, Longitude):** 43.70983667, -103.46744341 **Site Length (m):** 102 **pH:** 8.6  
**Survey Completed by:** South Dakota Game, Fish and Parks **Mean Width (m):** 6.7 **Water Temperature (C):** 25.0  
**Stream Classification:** BR0 **Number of Pass:** 3 **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) |
|----------------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Black Bullhead       | All        | 1                     | 1              | 1            | 1            | 15             | 4               | 10       | 6          | 3.50         | 16         | 240.0            | 262.0               |
| Black Crappie        | All        | 2                     | 2              | 4            | 2            | 30             | 4               | 20       | 12         | 3.30         | 32         | 189.5            | 123.5               |
| Brown Trout          | <200mm     | 2                     | 2              | 3            | 2            | 30             | 2               | 20       | 12         | 1.68         | 32         | 184.5            | 63.0                |
| Brown Trout          | All        | 2                     | 2              | 3            | 2            | 30             | 2               | 20       | 12         | 1.68         | 32         | 184.5            | 63.0                |
| Creek Chub           | All        | 44                    | 81             | 159          | 44           | 1213           | 18              | 794      | 491        | 16.02        | 1278       | 99.1             | 14.8                |
| Fathead Minnow       | All        | 10                    | 11             | 16           | 10           | 165            | 0               | 108      | 67         | 0.44         | 174        | 67.7             | 3.0                 |
| Hatchery Brown Trout | <200mm     | 1                     | 1              | 1            | 1            | 15             | 1               | 10       | 6          | 0.75         | 16         | 188.0            | 56.0                |
| Hatchery Brown Trout | >=200mm    | 17                    | 17             | 18           | 17           | 254            | 49              | 167      | 103        | 43.90        | 268        | 265.9            | 193.2               |
| Hatchery Brown Trout | All        | 18                    | 18             | 19           | 18           | 269            | 50              | 176      | 109        | 44.64        | 284        | 261.6            | 185.6               |
| Longnose Dace        | All        | 246                   | 1054           | 2654         | 246          | 15778          | 41              | 10333    | 6390       | 37.05        | 16626      | 57.6             | 2.6                 |
| Mountain Sucker      | All        | 38                    | 45             | 58           | 38           | 674            | 19              | 441      | 273        | 17.24        | 710        | 134.7            | 28.7                |
| White Sucker         | All        | 182                   | 280            | 367          | 193          | 4192           | 250             | 2745     | 1698       | 223.43       | 4417       | 167.8            | 59.7                |

**Site Number:** 1130  
**Site Midpoint (Latitude, Longitude):** 43.71860787, -103.48972931

Survey Completed by: South Dakota Game, Fish and Parks

Date Sampled: 07/18/1994

Conductivity (umhos/cm): 268

Stream Classification: None

Site Length (m): 104

pH: 8.0

Mean Width (m): 5.1

Water Temperature (C): 17.0

Number of Pass: 3

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) |
|----------------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Creek Chub           | All        | 60                    | 70             | 84           | 60           | 1378           | 19              | 673      | 558        | 16.78        | 1083       | 82.3             | 13.6                |
| Hatchery Brown Trout | <200mm     | 1                     | 1              | 1            | 1            | 20             | 1               | 10       | 8          | 1.20         | 15         | 198.0            | 68.0                |
| Hatchery Brown Trout | >=200mm    | 5                     | 5              | 5            | 5            | 98             | 13              | 48       | 40         | 11.85        | 77         | 242.0            | 134.8               |
| Hatchery Brown Trout | All        | 6                     | 6              | 6            | 6            | 118            | 15              | 58       | 48         | 13.04        | 93         | 234.7            | 123.7               |
| Longnose Dace        | All        | 1595                  | 2033           | 2150         | 1916         | 40020          | 130             | 19548    | 16208      | 115.76       | 31453      | 62.2             | 3.2                 |
| Mountain Sucker      | All        | 11                    | 16             | 35           | 11           | 315            | 4               | 154      | 128        | 3.68         | 248        | 106.7            | 13.1                |
| White Sucker         | All        | 56                    | 77             | 109          | 56           | 1516           | 87              | 740      | 614        | 77.24        | 1191       | 134.5            | 57.1                |

Site Number: 1295

Date Sampled: 07/19/1994

Conductivity (umhos/cm): 411

Site Midpoint (Latitude, Longitude): 43.77042317, -103.54852077

Site Length (m): 115

pH: 8.2

Survey Completed by: South Dakota Game, Fish and Parks

Mean Width (m): 3.5

Water Temperature (C): 16.0

Stream Classification: None

Number of Pass: 3

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) |
|------------------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Creek Chub             | All        | 147                   | 164            | 180          | 148          | 4713           | 90              | 1426     | 1909       | 80.17        | 2295       | 104.0            | 19.1                |
| Hatchery Rainbow Trout | <200mm     | 86                    | 87             | 90           | 86           | 2500           | 102             | 757      | 1013       | 91.03        | 1217       | 159.7            | 40.8                |
| Hatchery Rainbow Trout | >=200mm    | 20                    | 22             | 28           | 20           | 632            | 83              | 191      | 256        | 74.40        | 308        | 235.4            | 131.8               |
| Hatchery Rainbow Trout | All        | 106                   | 108            | 112          | 106          | 3103           | 180             | 939      | 1257       | 160.59       | 1511       | 174.0            | 58.0                |

|                 |     |    |    |    |    |      |     |     |     |        |     |       |       |
|-----------------|-----|----|----|----|----|------|-----|-----|-----|--------|-----|-------|-------|
| Smallmouth Bass | All | 1  | 1  | 1  | 1  | 29   | 4   | 9   | 12  | 3.13   | 14  | 210.0 | 122.0 |
| White Sucker    | All | 51 | 51 | 52 | 51 | 1466 | 121 | 443 | 594 | 107.85 | 714 | 179.7 | 82.4  |

**Site Number:** 1538

**Site Midpoint (Latitude, Longitude):** 43.78052786, -103.71843959

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

**Stream Classification:** None

**Date Sampled:** 07/19/1994

**Site Length (m):** 100

**Mean Width (m):** 1.9

**Number of Pass:** 3

**Conductivity (umhos/cm):** 404

**pH:** 8.5

**Water Temperature (C):** 14.0

**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) |
|----------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Creek Chub     | All        | 20                    | 25             | 38           | 20           | 1330           | 7               | 250      | 539        | 6.62         | 402        | 60.8             | 5.6                 |
| Fathead Minnow | All        | 7                     | 7              | 8            | 7            | 372            | 2               | 70       | 151        | 1.50         | 113        | 50.0             | 4.5                 |
| White Sucker   | All        | 1                     | 1              | 2            | 1            | 53             | 0               | 10       | 22         | 0.19         | 16         | 73.0             | 4.0                 |

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 |   |
|--|---|
| <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 French Creek, 1984-1994

**Site 1062**

| Species/Size       | Date         | Pop Est. | (95% C.I.) | Stream Classification |
|--------------------|--------------|----------|------------|-----------------------|
| Black Bullhead     | Jul 18, 1994 | 1        | 1-1        |                       |
| Black Crappie      | Jul 21, 1993 | 6        | 5-13       |                       |
|                    | Jul 18, 1994 | 2        | 2-4        |                       |
| Brown Trout <200mm | Jul 21, 1993 | 1        | 1-2        |                       |
|                    | Jul 18, 1994 | 2        | 2-3        |                       |
| Creek Chub         | Jul 21, 1993 | 75       | 37-170     |                       |
|                    | Jul 18, 1994 | 81       | 44-159     |                       |

|                                 |              |      |          |
|---------------------------------|--------------|------|----------|
| Fathead Minnow                  | Jul 21, 1993 | 4    | 4-5      |
|                                 | Jul 18, 1994 | 11   | 10-16    |
| Hatchery Brown Trout <200mm     | Jul 18, 1994 | 1    | 1-1      |
| Hatchery Brown Trout<br>>=200mm | Jul 21, 1993 | 24   | 22-30    |
|                                 | Jul 18, 1994 | 17   | 17-18    |
| Longnose Dace                   | Jul 21, 1993 | 95   | 77-117   |
|                                 | Jul 18, 1994 | 1054 | 246-2654 |
| Mountain Sucker                 | Jul 21, 1993 | 10   | 9-15     |
|                                 | Jul 18, 1994 | 45   | 38-58    |
| White Sucker                    | Jul 21, 1993 | 213  | 115-341  |
|                                 | Jul 18, 1994 | 280  | 193-367  |

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**Site 1130**

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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  | Jul 21, 1993 | 1               | 1-1               |                              |
| Brown Trout >=200mm | Jul 08, 1992 | 9               | 9-9               | BR2                          |
|                     | Jul 21, 1993 | 2               | 2-2               | BR3                          |

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|                                 |              |      |           |
|---------------------------------|--------------|------|-----------|
| Creek Chub                      | Jul 08, 1992 | 74   | 71-79     |
|                                 | Jul 21, 1993 | 20   | 17-29     |
|                                 | Jul 18, 1994 | 70   | 60-84     |
| Fathead Minnow                  | Jul 08, 1992 | 3    | 3-4       |
| Hatchery Brown Trout <200mm     | Jul 21, 1993 | 2    | 2-2       |
|                                 | Jul 18, 1994 | 1    | 1-1       |
| Hatchery Brown Trout<br>>=200mm | Jul 21, 1993 | 24   | 24-24     |
|                                 | Jul 18, 1994 | 5    | 5-5       |
| Longnose Dace                   | Jul 08, 1992 | 292  | 118-583   |
|                                 | Jul 21, 1993 | 423  | 296-550   |
|                                 | Jul 18, 1994 | 2033 | 1916-2150 |
| Mountain Sucker                 | Jul 08, 1992 | 19   | 19-20     |
|                                 | Jul 21, 1993 | 9    | 9-10      |
|                                 | Jul 18, 1994 | 16   | 11-35     |
| White Sucker                    | Jul 08, 1992 | 124  | 124-125   |
|                                 | Jul 21, 1993 | 90   | 88-94     |

White Sucker

Jul 18, 1994

77

56-109

**Site 1295**

| <b>Species/Size</b>              | <b>Date</b>  | <b>Pop Est.</b> | <b>(95% C.I.)</b> | <b>Stream Classification</b> |
|----------------------------------|--------------|-----------------|-------------------|------------------------------|
| Creek Chub                       | Jul 19, 1994 | 164             | 148-180           |                              |
| Hatchery Rainbow Trout<br><200mm | Jul 19, 1994 | 87              | 86-90             |                              |
| Hatchery Rainbow Trout<br>≥200mm | Jul 19, 1994 | 22              | 20-28             |                              |
| Smallmouth Bass                  | Jul 19, 1994 | 1               | 1-1               |                              |
| White Sucker                     | Jul 19, 1994 | 51              | 51-52             |                              |

**Site 1538**

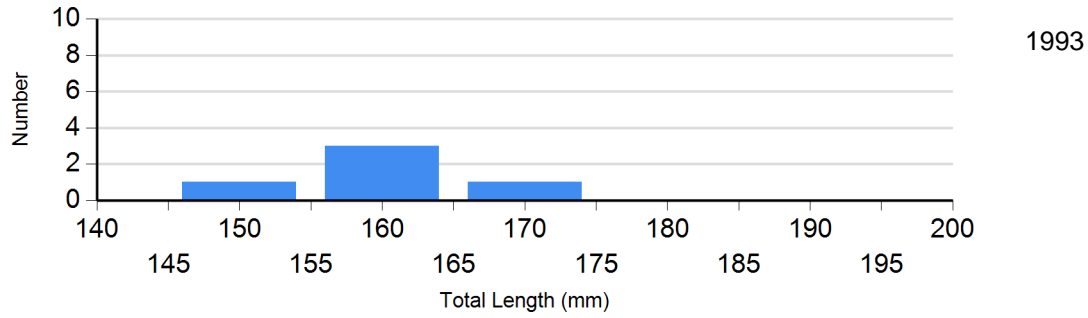
| <b>Species/Size</b> | <b>Date</b>  | <b>Pop Est.</b> | <b>(95% C.I.)</b> | <b>Stream Classification</b> |
|---------------------|--------------|-----------------|-------------------|------------------------------|
| Creek Chub          | Jul 19, 1994 | 25              | 20-38             |                              |
| Fathead Minnow      | Jul 19, 1994 | 7               | 7-8               |                              |
| White Sucker        | Jul 19, 1994 | 1               | 1-2               |                              |

## Length Frequency Distribution

Length frequency histogram of species sampled by year.

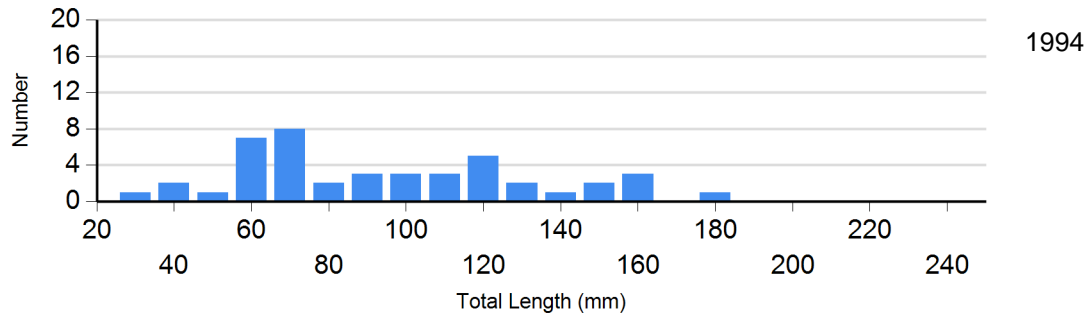
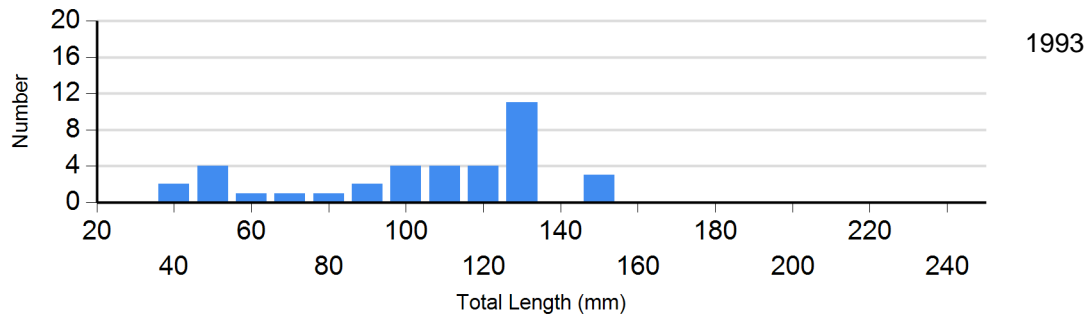
**Site:** 1062

**Species:** Black Crappie



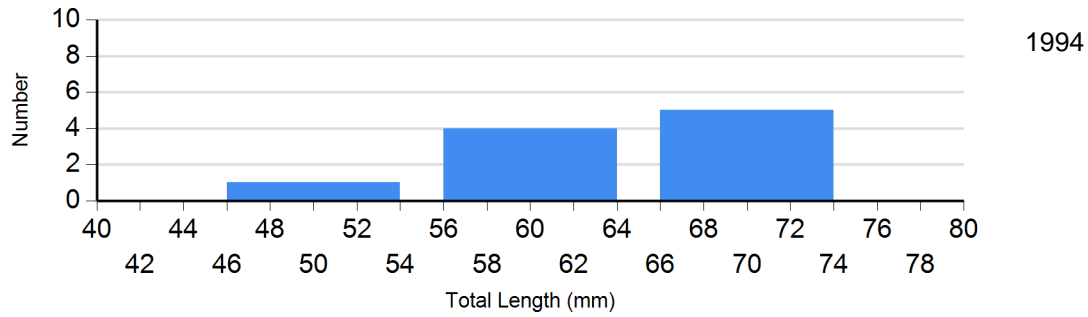
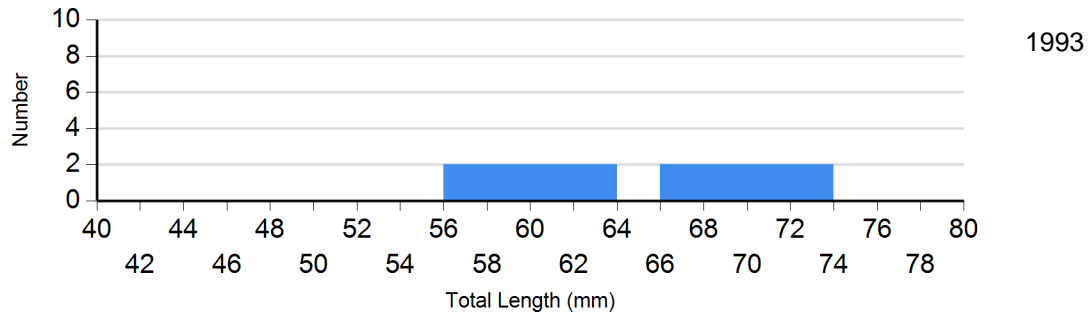
**Site:** 1062

**Species:** Creek Chub

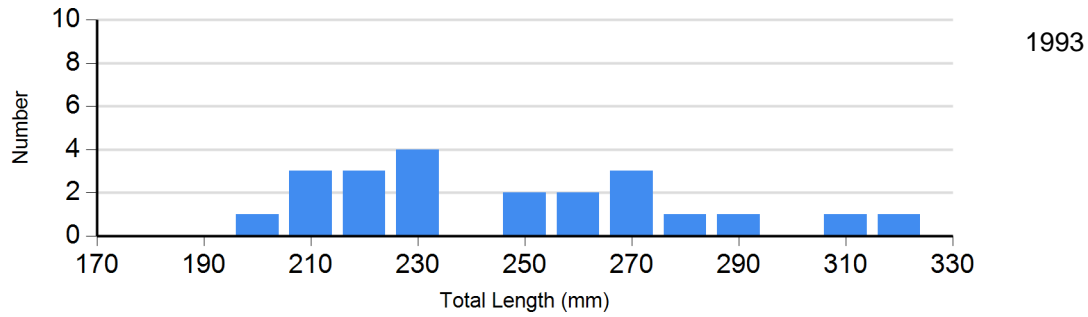


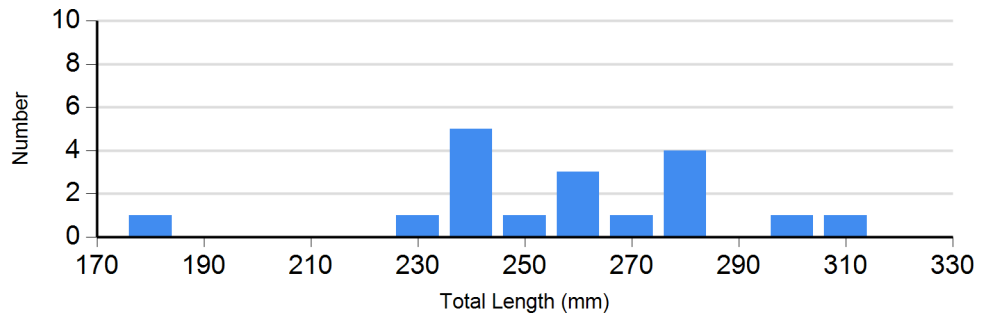


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**Species:** Fathead Minnow

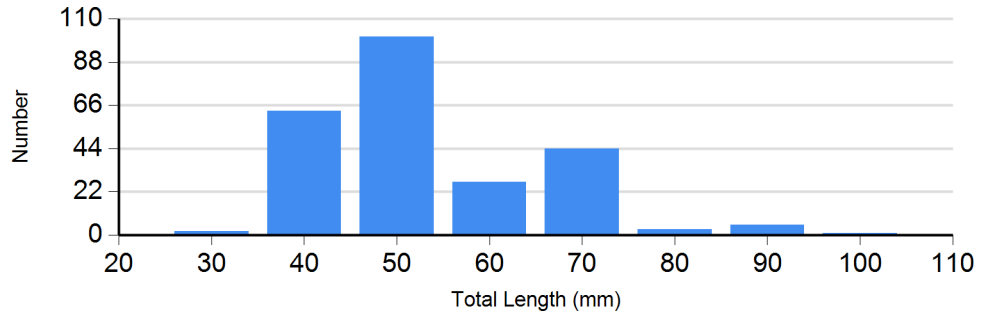
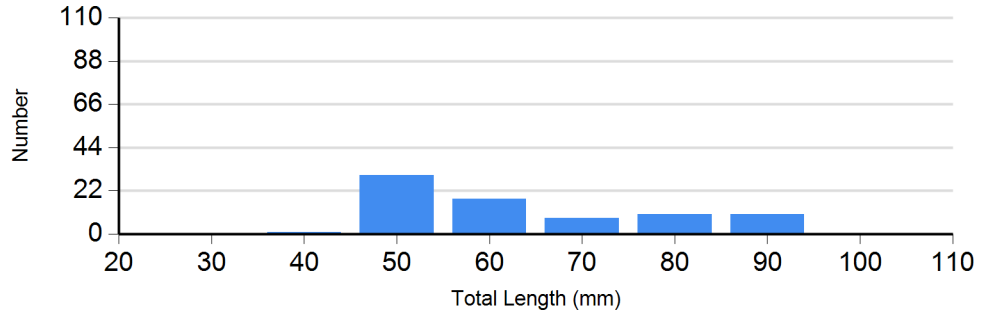


**Site:** 1062  
**Species:** Hatchery Brown Trout

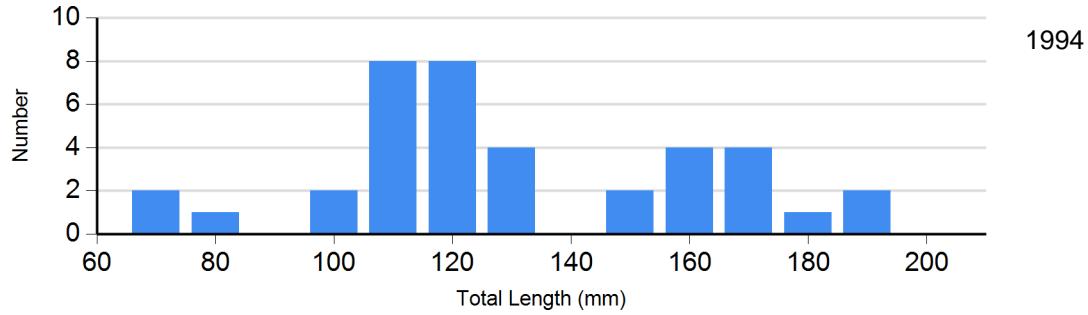
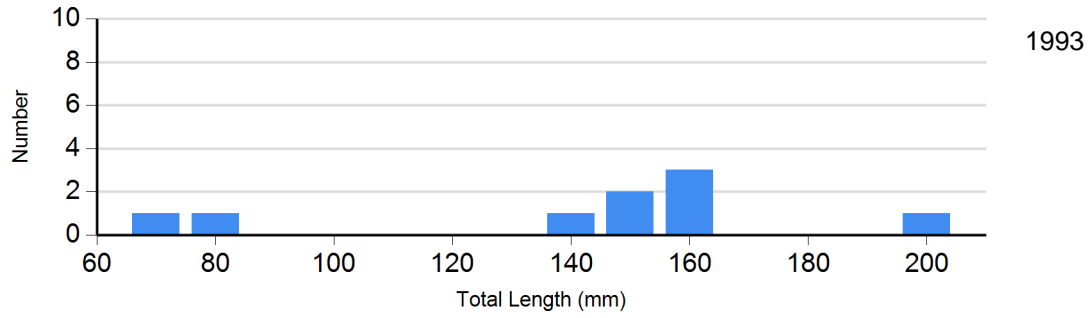




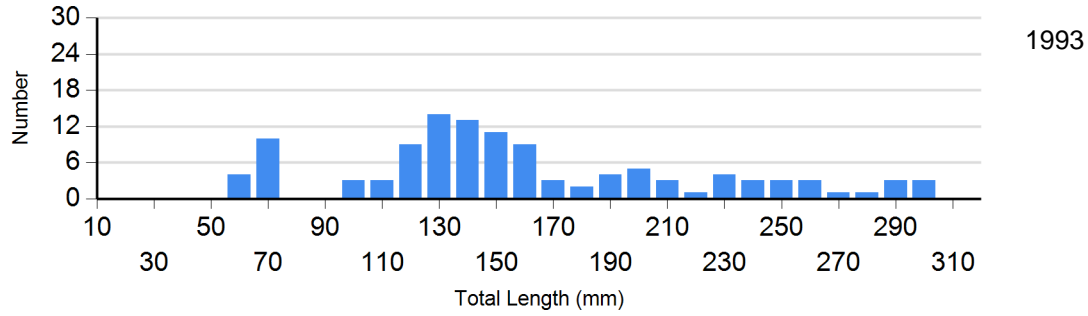
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Species: Longnose Dace

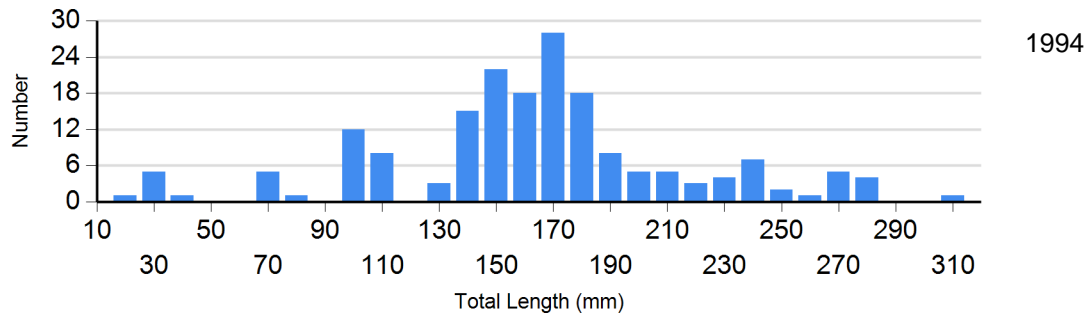


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**Species:** Mountain Sucker

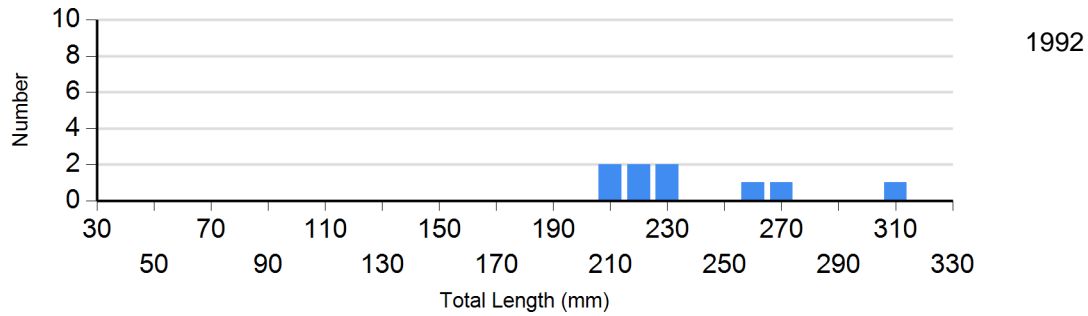


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**Species:** White Sucker

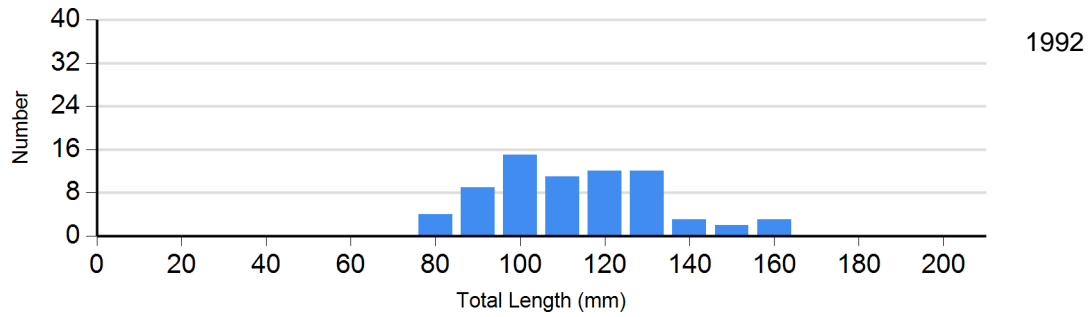


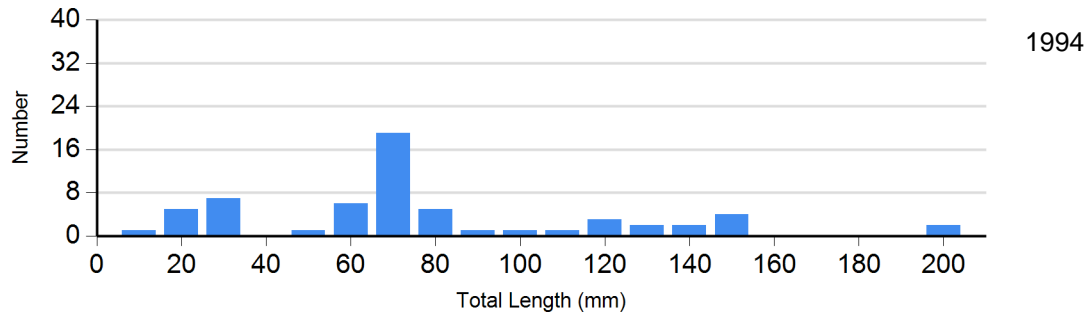
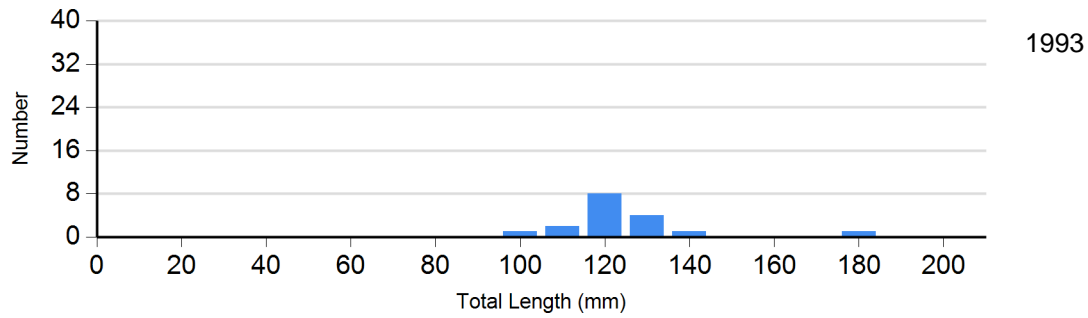


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**Species:** Brown Trout

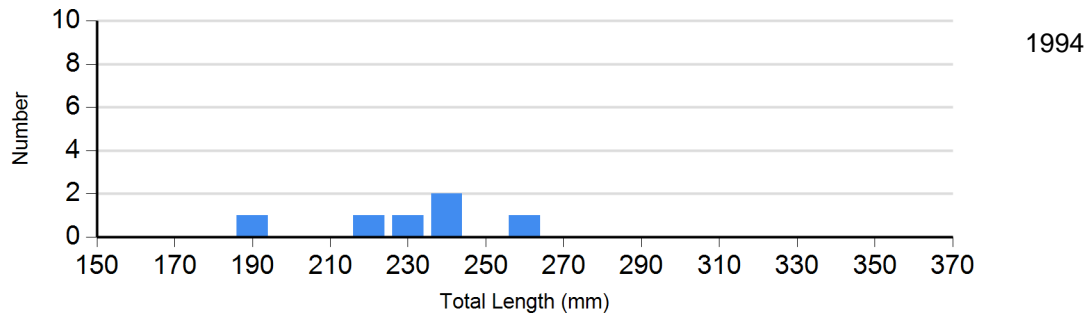
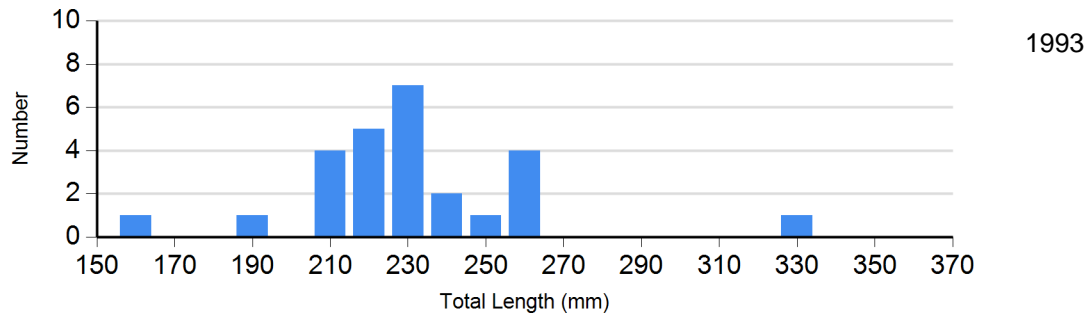


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**Species:** Creek Chub

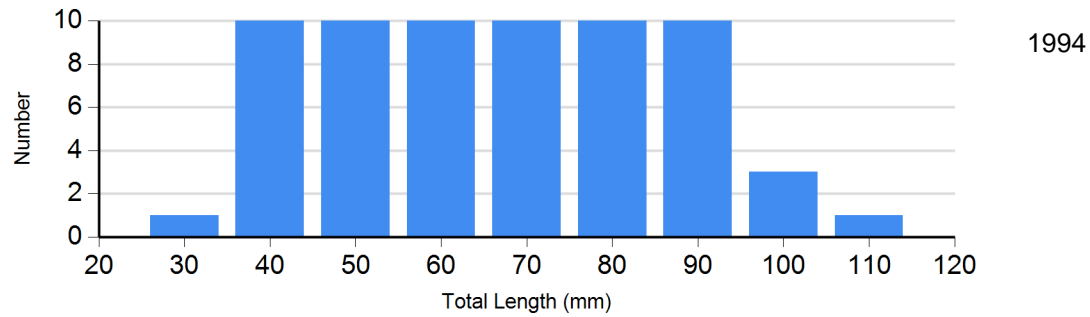
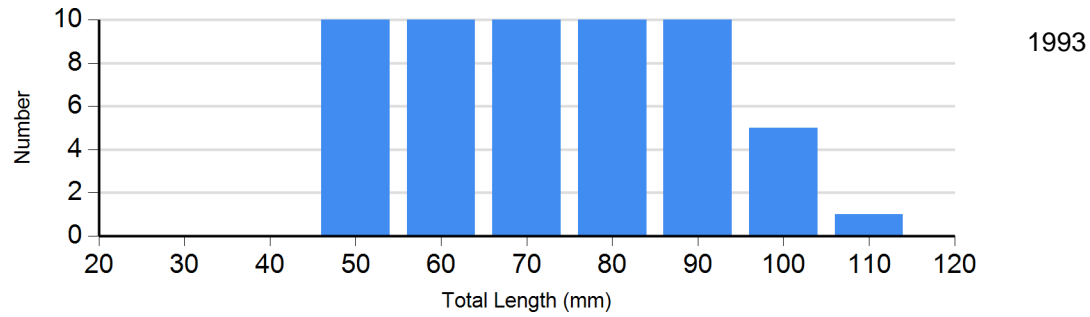
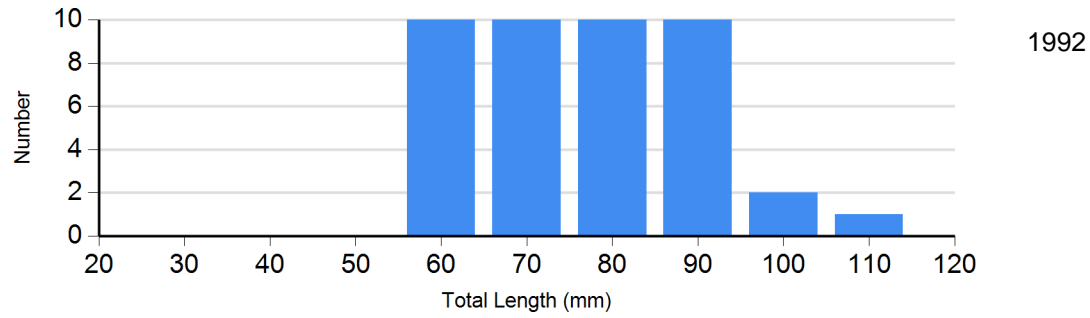




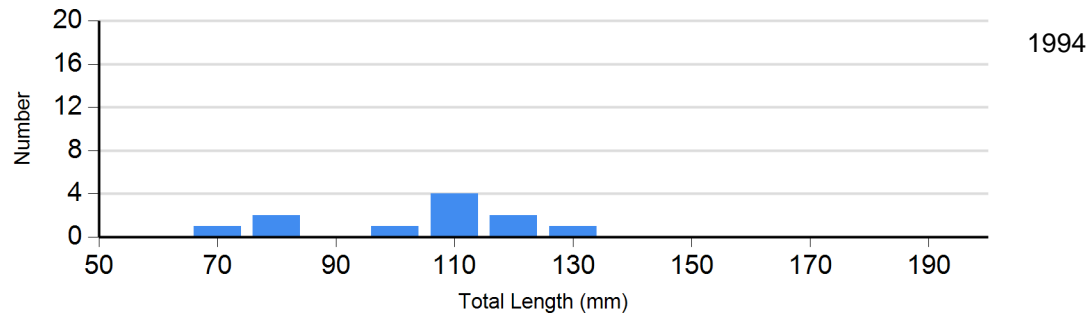
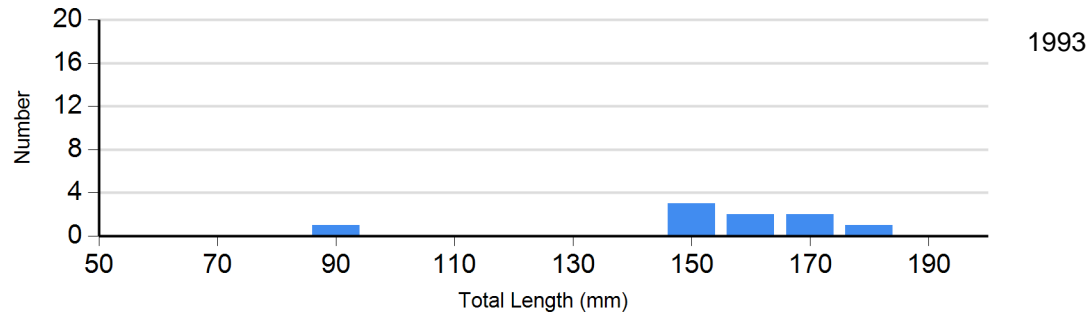
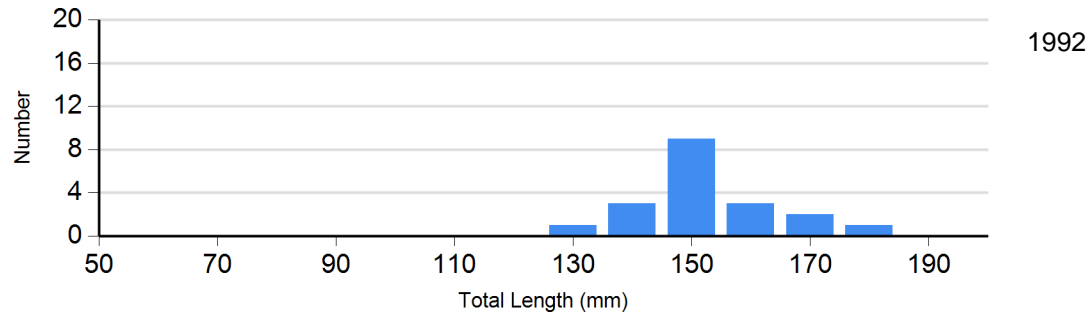
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**Species:** Hatchery Brown Trout



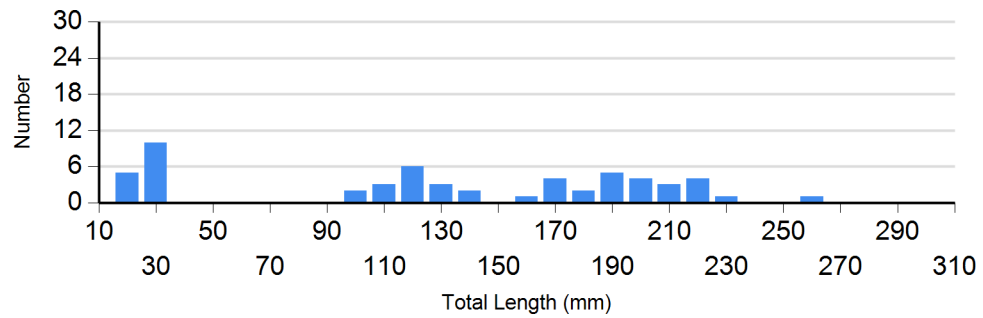
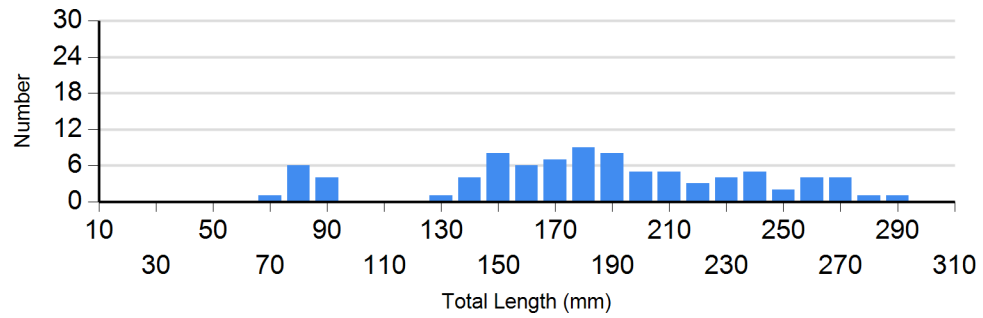
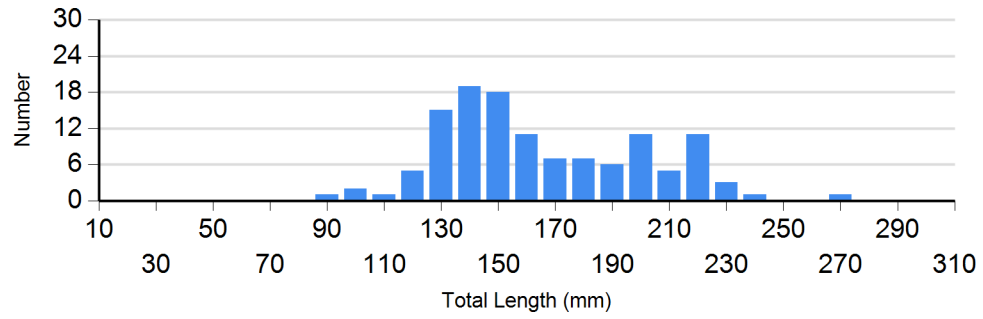
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Species: Longnose Dace



Site: 1130  
Species: Mountain Sucker

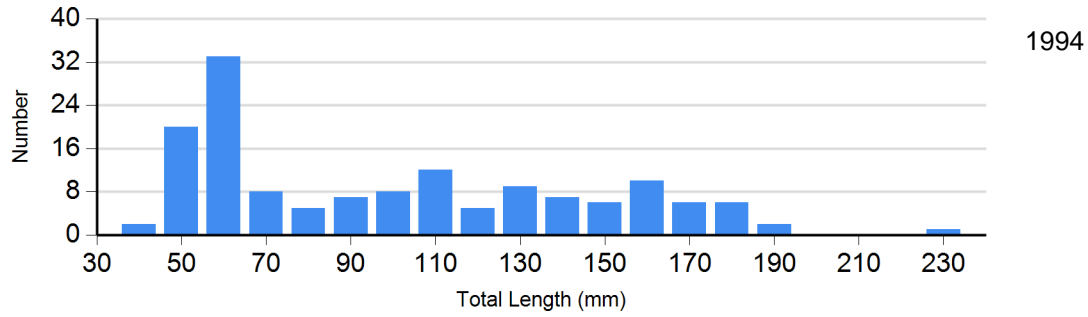


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Species: White Sucker

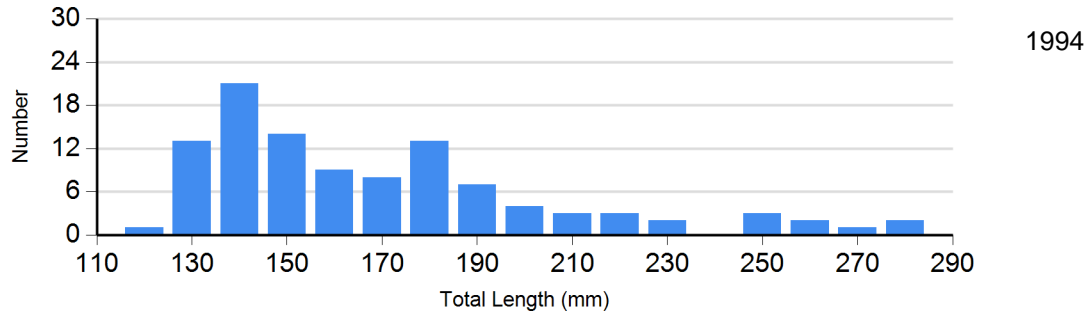




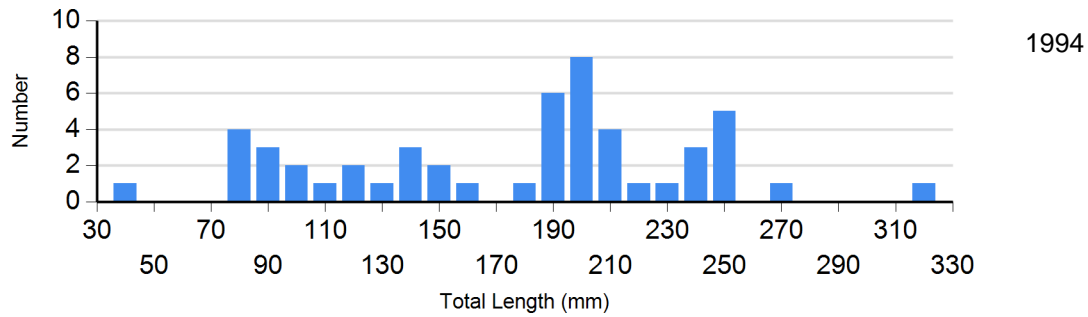
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**Species:** Creek Chub



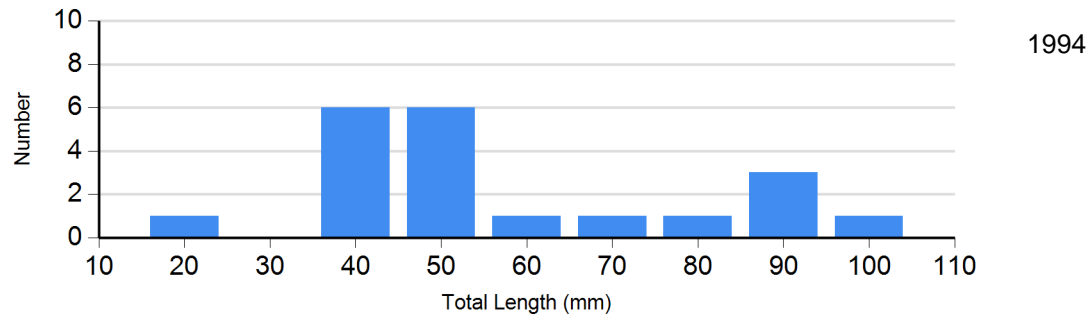
**Site:** 1295  
**Species:** Hatchery Rainbow Trout



**Site:** 1295  
**Species:** White Sucker



**Site:** 1538  
**Species:** Creek Chub



**Site:** 1538  
**Species:** Fathead Minnow

