

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Spring Creek (Trib. of Cheyenne), Pennington County
02-0061-00
2002

Table 1. Population and Biomass Estimates for Spring Creek (Trib. of Cheyenne)

| | | |
|--|---------------------------------|-------------------------------------|
| Site Number: 1840 | Date Sampled: 09/16/2002 | Conductivity (umhos/cm): 270 |
| Site Midpoint (Latitude, Longitude): 43.99009910, -103.40772820 | Site Length (m): 100 | pH: 8.8 |
| Survey Completed by: South Dakota Game, Fish and Parks | Mean Width (m): 9.7 | Water Temperature (C): 16.5 |
| Stream Classification: BR2, RB0 | 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) |
|---------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Brown Trout | <200mm | 2 | 2 | 3 | 2 | 21 | 0 | 20 | 8 | 0.08 | 32 | 75.5 | 4.5 |
| Brown Trout | >=200mm | 7 | 7 | 8 | 7 | 72 | 14 | 70 | 29 | 12.40 | 113 | 267.9 | 192.6 |
| Brown Trout | All | 9 | 9 | 10 | 9 | 93 | 14 | 90 | 38 | 12.48 | 145 | 225.1 | 150.8 |
| Creek Chub | All | 274 | 581 | 872 | 290 | 5984 | 23 | 5810 | 2424 | 20.28 | 9348 | 55.5 | 3.8 |
| Rainbow Trout | <200mm | 1 | 1 | 1 | 1 | 10 | 0 | 10 | 4 | 0.04 | 16 | 71.0 | 4.0 |
| Rainbow Trout | All | 1 | 1 | 1 | 1 | 10 | 0 | 10 | 4 | 0.04 | 16 | 71.0 | 4.0 |
| Rock Bass | All | 20 | 25 | 38 | 20 | 257 | 5 | 250 | 104 | 4.56 | 402 | 72.7 | 19.8 |
| White Sucker | All | 103 | 142 | 185 | 103 | 1463 | 29 | 1420 | 592 | 26.26 | 2285 | 92.5 | 20.1 |

| | | |
|--|---------------------------------|-------------------------------------|
| Site Number: 1864 | Date Sampled: 09/16/2002 | Conductivity (umhos/cm): 288 |
| Site Midpoint (Latitude, Longitude): 43.98424529, -103.42856922 | Site Length (m): 100 | pH: 9.0 |
| Survey Completed by: South Dakota Game, Fish and Parks | Mean Width (m): 9.3 | Water Temperature (C): 21.9 |
| Stream Classification: BR3 | 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) |
|----------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Black Bullhead | All | 1 | 1 | 1 | 1 | 11 | 0 | 10 | 4 | 0.12 | 16 | 95.0 | 12.0 |

| | | | | | | | | | | | | | |
|------------------|---------|-----|-----|-----|-----|------|----|------|------|-------|------|-------|-------|
| Brown Trout | <200mm | 1 | 1 | 1 | 1 | 11 | 0 | 10 | 4 | 0.06 | 16 | 85.0 | 6.0 |
| Brown Trout | >=200mm | 1 | 1 | 1 | 1 | 11 | 1 | 10 | 4 | 1.24 | 16 | 240.0 | 129.0 |
| Brown Trout | All | 3 | 3 | 4 | 3 | 32 | 2 | 30 | 13 | 1.95 | 48 | 162.5 | 67.5 |
| Creek Chub | All | 54 | 60 | 70 | 54 | 648 | 2 | 600 | 263 | 2.06 | 965 | 67.4 | 3.6 |
| Longnose Dace | All | 41 | 40 | 49 | 41 | 432 | 1 | 400 | 175 | 0.58 | 644 | 48.5 | 1.5 |
| Rock Bass | All | 6 | 5 | 7 | 6 | 54 | 0 | 50 | 22 | 0.39 | 80 | 43.2 | 8.0 |
| White Sucker | All | 403 | 589 | 695 | 483 | 6364 | 54 | 5890 | 2578 | 48.20 | 9477 | 82.1 | 8.5 |

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 Spring Creek (Trib. of Cheyenne), 1992-2002

Site 1840

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|---------------------|--------------|----------|------------|-----------------------|
| Brown Trout <200mm | Sep 13, 1996 | 35 | 28-50 | |
| | Oct 03, 1997 | 65 | 46-96 | |
| | Sep 01, 1998 | 69 | 63-78 | |
| | Sep 18, 2000 | 226 | 208-244 | |
| | Sep 16, 2002 | 2 | 2-3 | |
| Brown Trout >=200mm | Sep 13, 1996 | 20 | 20-20 | BR2 |
| | Oct 03, 1997 | 25 | 22-33 | BR2 |

| | | | | |
|----------------------|--------------|-----|---------|-----|
| Brown Trout >=200mm | Sep 01, 1998 | 19 | 18-23 | BR2 |
| | Sep 18, 2000 | 21 | 21-21 | BR2 |
| | Sep 16, 2002 | 7 | 7-8 | BR2 |
| Creek Chub | Sep 13, 1996 | 337 | 92-1017 | |
| | Oct 03, 1997 | 13 | 12-17 | |
| | Sep 01, 1998 | 18 | 6-131 | |
| | Sep 16, 2002 | 581 | 290-872 | |
| Longnose Dace | Sep 13, 1996 | 7 | 8-10 | |
| | Oct 03, 1997 | 7 | 8-13 | |
| | Sep 01, 1998 | 29 | 22-46 | |
| | Sep 18, 2000 | 32 | 33-46 | |
| Rainbow Trout <200mm | Sep 16, 2002 | 1 | 1-1 | |
| Rock Bass | Sep 13, 1996 | 2 | 2-2 | |
| | Oct 03, 1997 | 2 | 2-2 | |
| | Sep 01, 1998 | 3 | 3-4 | |
| | Sep 18, 2000 | 45 | 32-72 | |

| | | | |
|--------------|--------------|-----|---------|
| Rock Bass | Sep 16, 2002 | 25 | 20-38 |
| White Sucker | Sep 13, 1996 | 13 | 14-18 |
| | Oct 03, 1997 | 6 | 4-21 |
| | Sep 01, 1998 | 11 | 11-13 |
| | Sep 18, 2000 | 34 | 35-43 |
| | Sep 16, 2002 | 142 | 103-185 |

Site 1864

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|---------------------|--------------|-----------------|-------------------|------------------------------|
| Black Bullhead | Sep 16, 2002 | 1 | 1-1 | |
| Brown Trout <200mm | Jul 28, 1993 | 23 | 11-82 | |
| | Sep 04, 1996 | 200 | 185-215 | |
| | Sep 18, 1997 | 77 | 65-93 | |
| | Sep 01, 1998 | 333 | 315-351 | |
| | Sep 26, 2000 | 463 | 463-463 | |
| | Sep 16, 2002 | 1 | 1-1 | |
| Brown Trout >=200mm | Jul 28, 1993 | 17 | 16-21 | BR2 |

| | | | | |
|---------------------|--------------|-----|---------|-----|
| Brown Trout >=200mm | Sep 04, 1996 | 24 | 24-25 | BR2 |
| | Sep 18, 1997 | 67 | 63-74 | BR1 |
| | Sep 01, 1998 | 49 | 46-55 | BR1 |
| | Sep 26, 2000 | 43 | 43-43 | BR1 |
| | Sep 16, 2002 | 1 | 1-1 | BR3 |
| Creek Chub | Jul 28, 1993 | 385 | 342-428 | |
| | Sep 04, 1996 | 96 | 94-100 | |
| | Sep 18, 1997 | 6 | 5-13 | |
| | Sep 01, 1998 | 1 | 1-1 | |
| | Sep 16, 2002 | 60 | 54-70 | |
| Longnose Dace | Jul 28, 1993 | 3 | 3-3 | |
| | Sep 04, 1996 | 18 | 16-25 | |
| | Sep 18, 1997 | 4 | 4-4 | |
| | Sep 01, 1998 | 5 | 5-7 | |
| | Sep 26, 2000 | 5 | 5-6 | |
| | Sep 16, 2002 | 40 | 41-49 | |

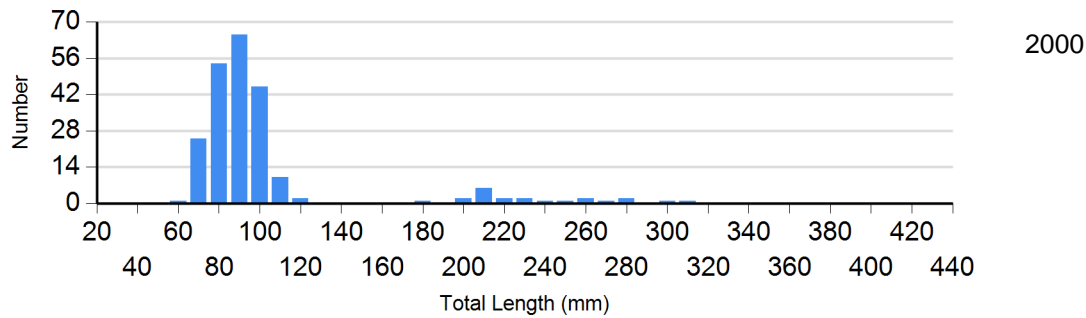
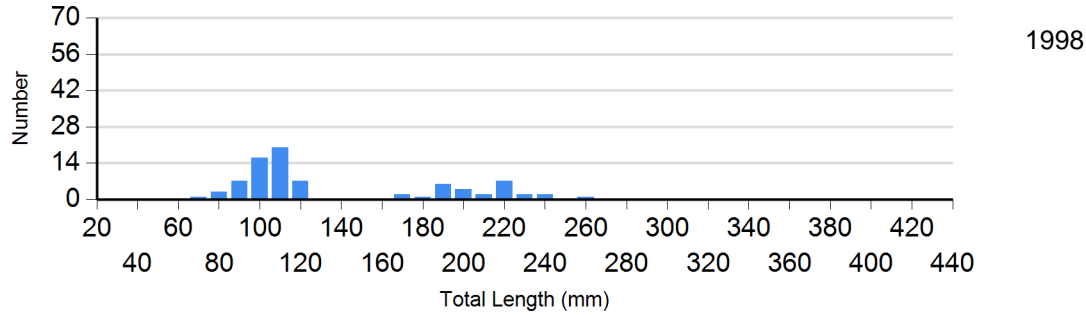
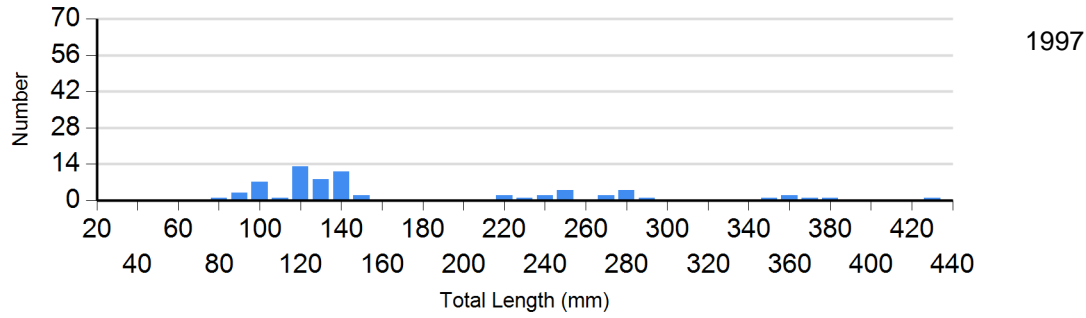
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|--------------|--------------|-----|---------|
| Rock Bass | Jul 28, 1993 | 4 | 4-4 |
| | Sep 04, 1996 | 2 | 2-4 |
| | Sep 18, 1997 | 1 | 1-1 |
| | Sep 26, 2000 | 19 | 15-31 |
| | Sep 16, 2002 | 5 | 6-7 |
| White Sucker | Jul 28, 1993 | 7 | 7-8 |
| | Sep 04, 1996 | 6 | 6-8 |
| | Sep 18, 1997 | 6 | 6-7 |
| | Sep 01, 1998 | 6 | 6-8 |
| | Sep 26, 2000 | 92 | 67-126 |
| | Sep 16, 2002 | 589 | 483-695 |

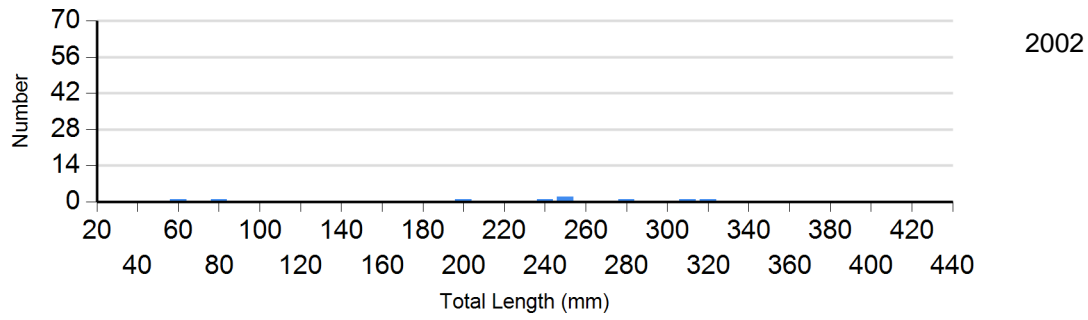
Length Frequency Distribution

Length frequency histogram of species sampled by year.

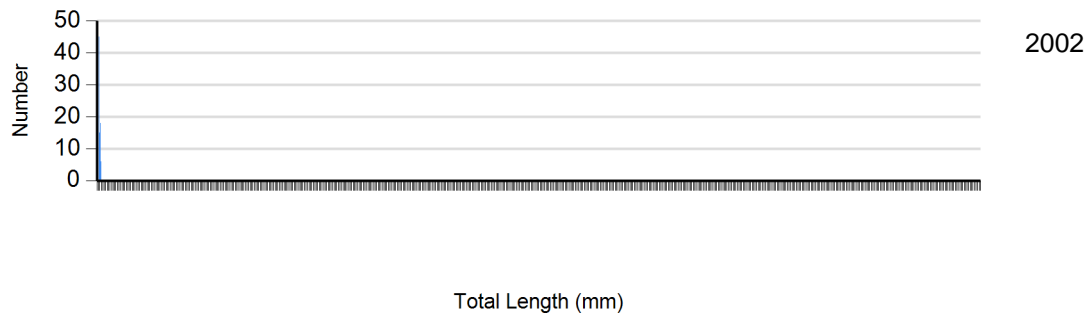
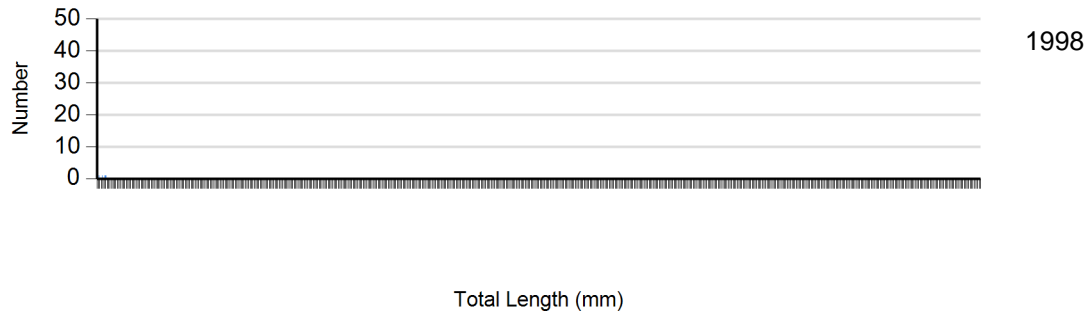
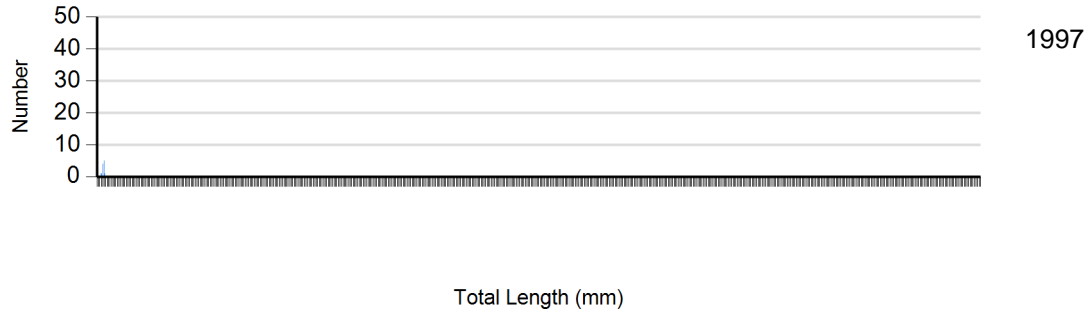
Site: 1840

Species: Brown Trout

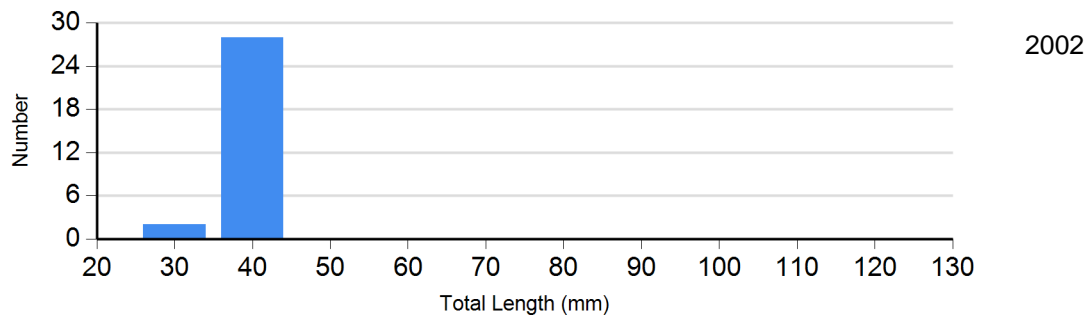
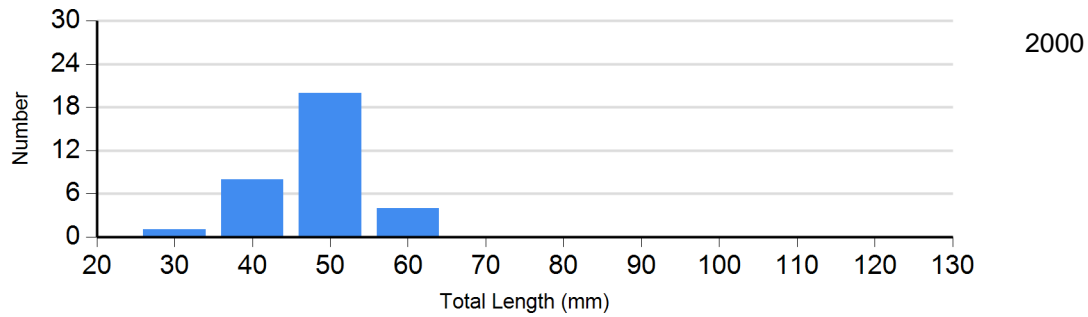
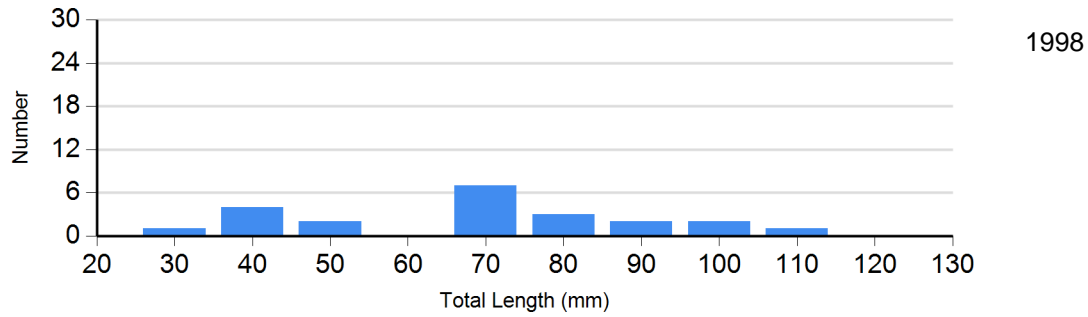
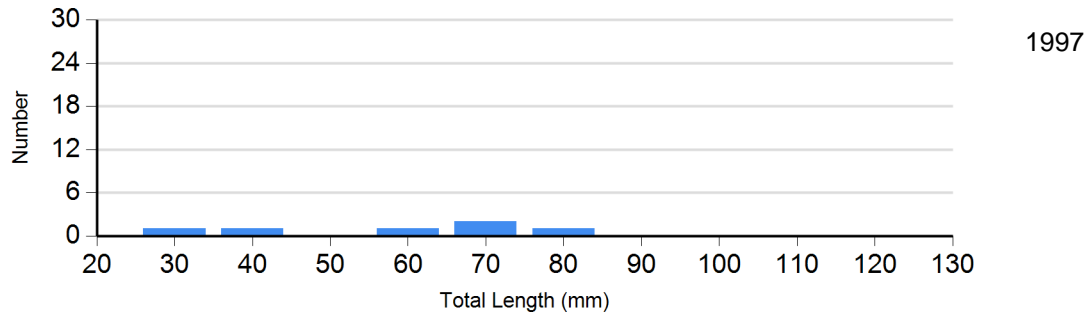




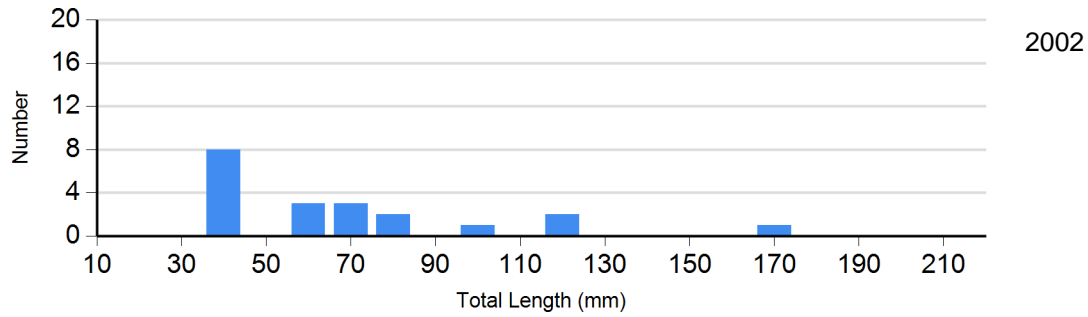
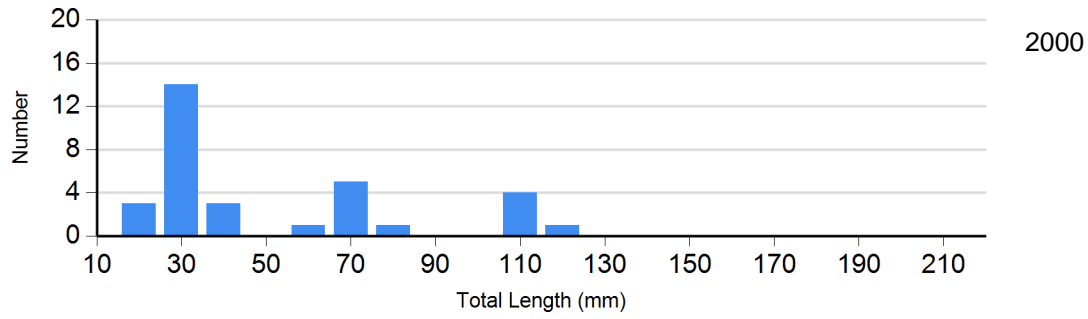
Site: 1840
Species: Creek Chub



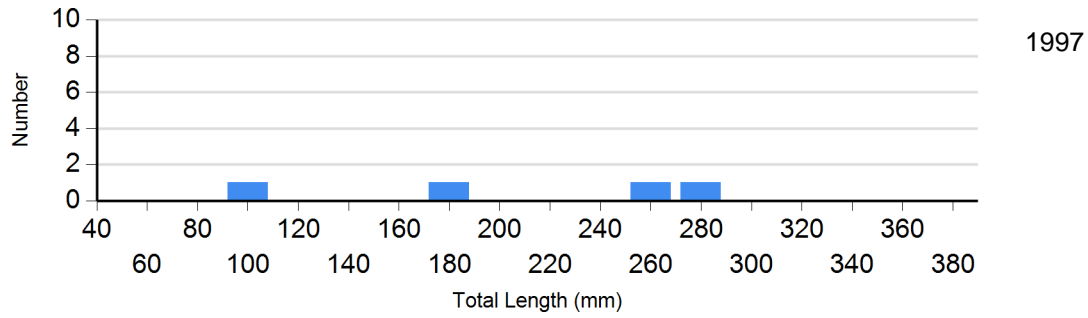
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Species: Longnose Dace

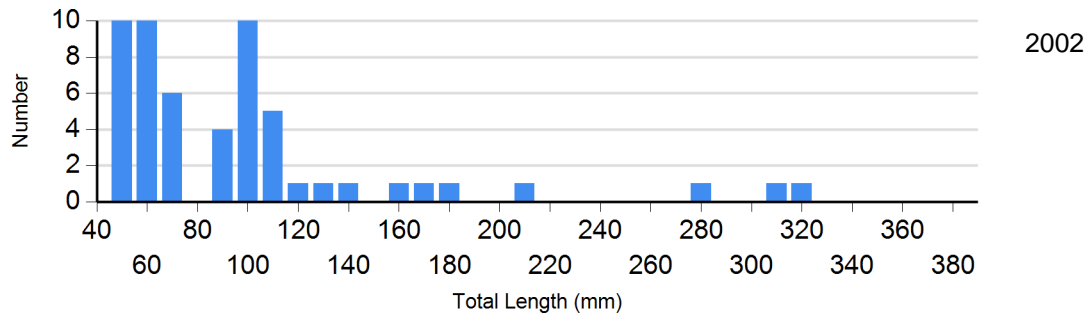
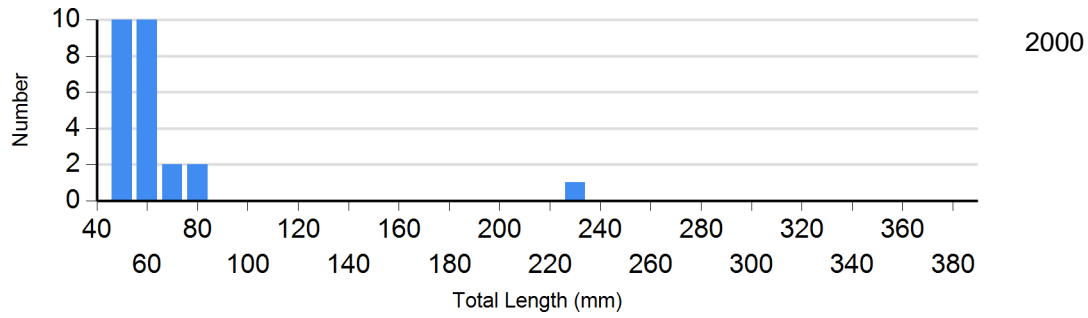
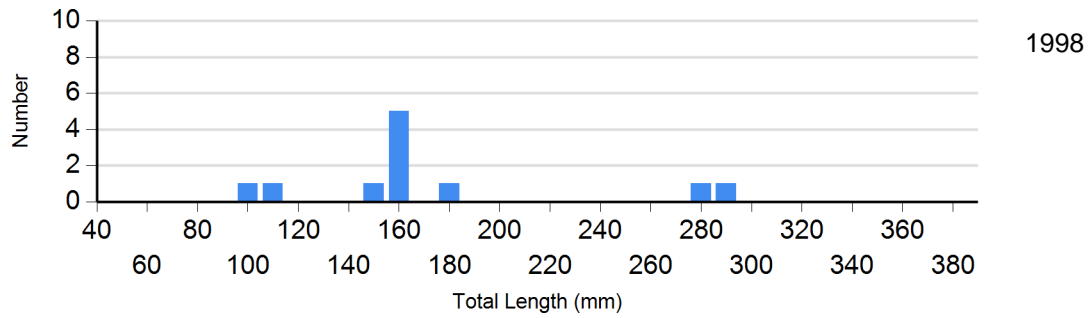


Site: 1840
Species: Rock Bass

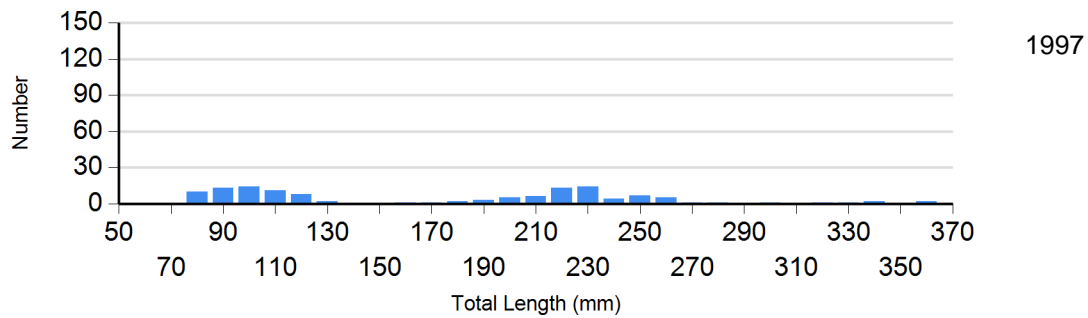


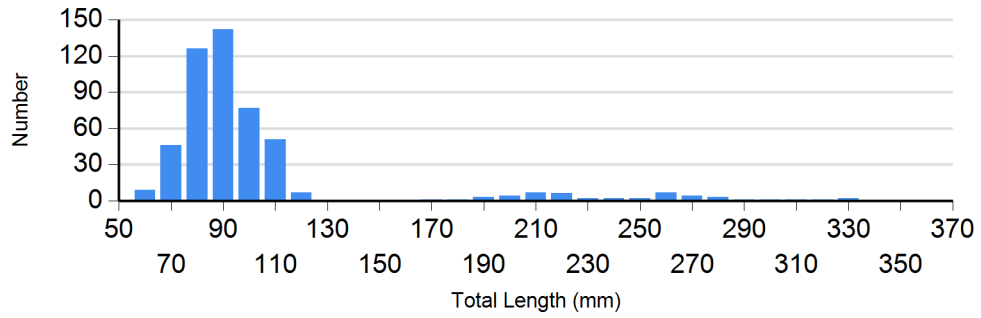
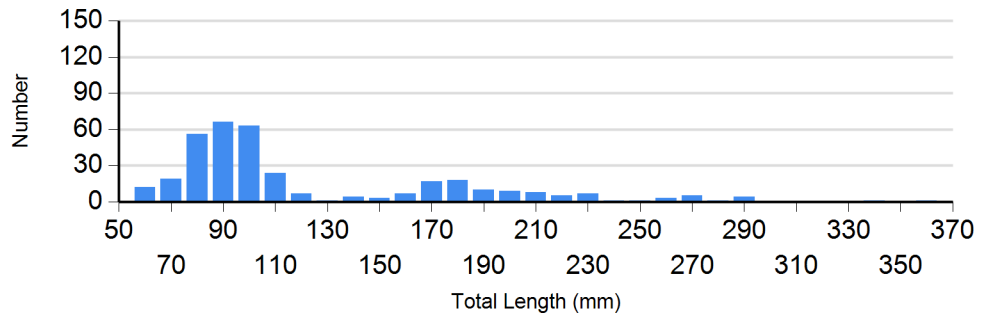
Site: 1840
Species: White Sucker



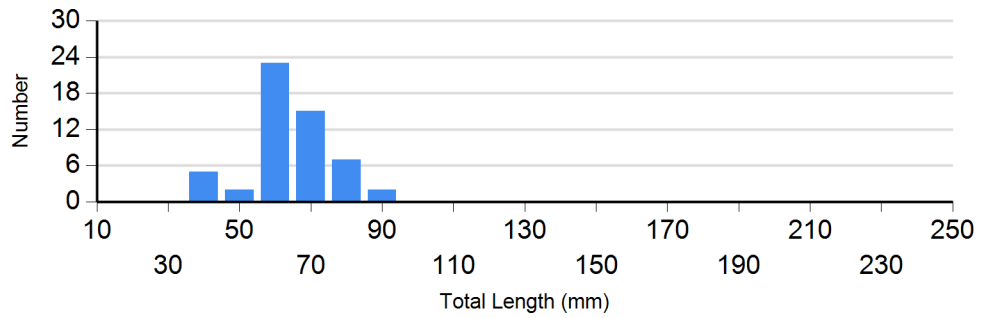
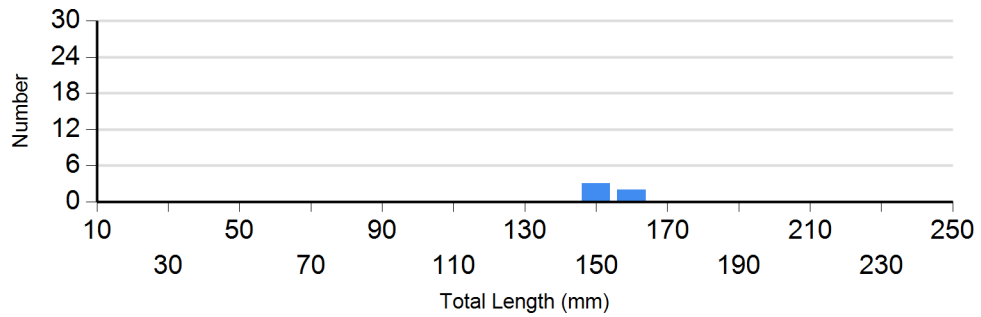


Site: 1864
Species: Brown Trout

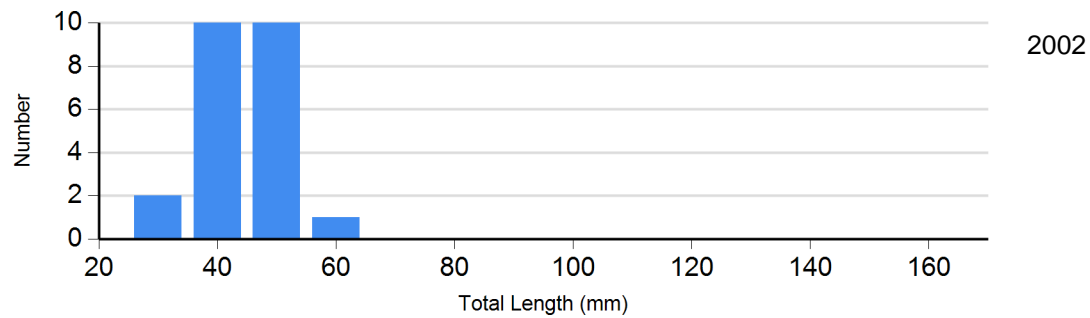
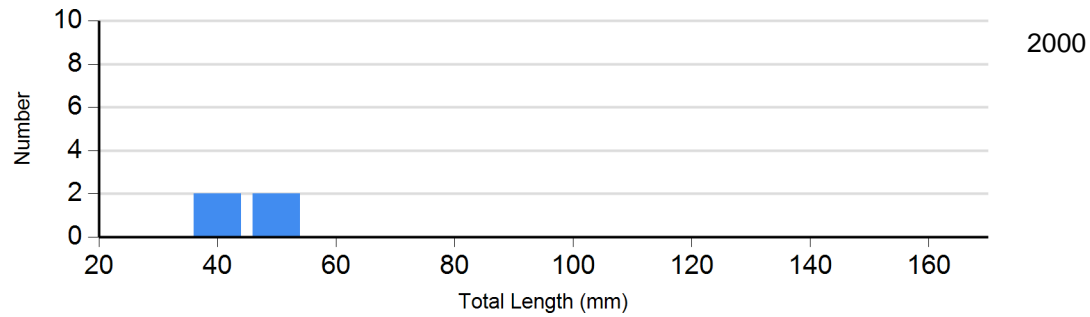
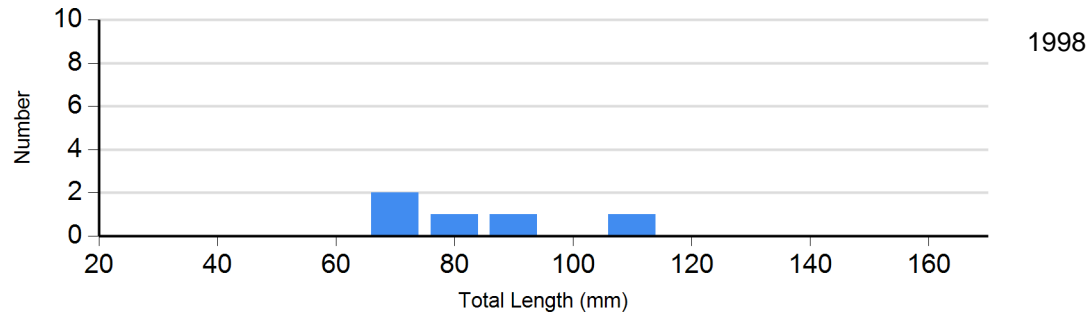
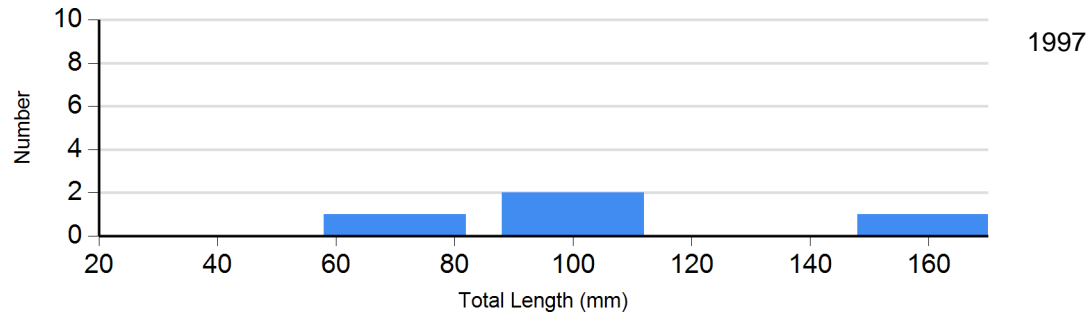




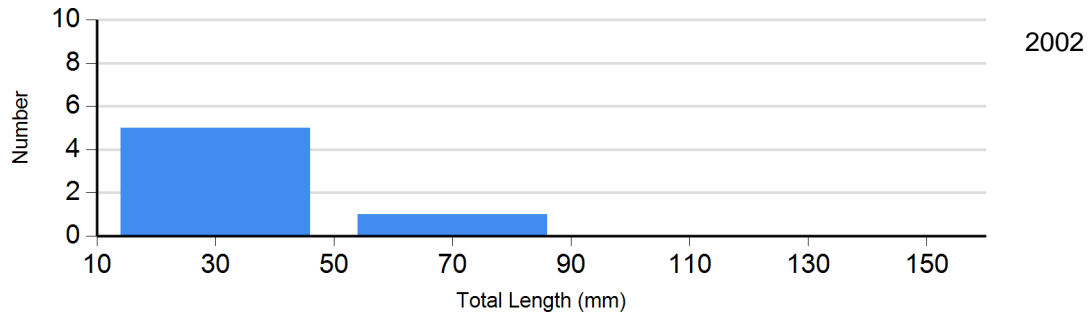
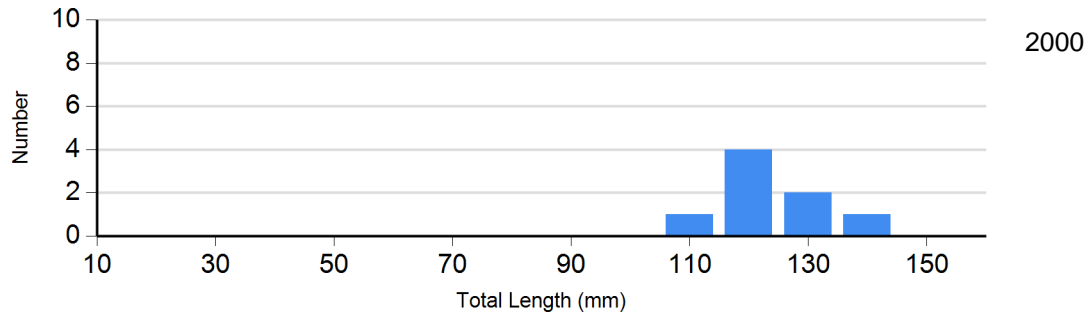
Site: 1864
Species: Creek Chub



Site: 1864
Species: Longnose Dace



Site: 1864
Species: Rock Bass



Site: 1864
Species: White Sucker

