

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Crow Creek (Trib. of Redwater), Lawrence County
09-0037-00
2000

Table 1. Population and Biomass Estimates for Crow Creek (Trib. of Redwater)

| | | |
|--|---------------------------------|-------------------------------------|
| Site Number: 14 | Date Sampled: 10/30/2000 | Conductivity (umhos/cm): 925 |
| Site Midpoint (Latitude, Longitude): 44.56875580, -104.00662422 | Site Length (m): 100 | pH: 8.6 |
| Survey Completed by: South Dakota Game, Fish and Parks | Mean Width (m): 10.6 | Water Temperature (C): 12.0 |
| Stream Classification: BR1, RB2 | 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 | 4 | 4 | 4 | 4 | 38 | 1 | 40 | 15 | 1.10 | 64 | 139.5 | 32.8 |
| Brown Trout | >=200mm | 52 | 55 | 61 | 52 | 518 | 96 | 550 | 210 | 85.86 | 885 | 263.8 | 185.6 |
| Brown Trout | All | 56 | 59 | 65 | 56 | 556 | 97 | 590 | 225 | 86.59 | 949 | 254.9 | 174.5 |
| Longnose Sucker | All | 52 | 53 | 56 | 52 | 499 | 205 | 530 | 202 | 182.77 | 853 | 332.7 | 410.1 |
| Rainbow Trout | <200mm | 1 | 1 | 2 | 1 | 9 | 1 | 10 | 4 | 0.54 | 16 | 190.0 | 64.0 |
| Rainbow Trout | >=200mm | 1 | 1 | 1 | 1 | 9 | 3 | 10 | 4 | 2.84 | 16 | 315.0 | 338.0 |
| Rainbow Trout | All | 2 | 2 | 3 | 2 | 19 | 4 | 20 | 8 | 3.38 | 32 | 252.5 | 201.0 |
| White Sucker | All | 131 | 133 | 137 | 131 | 1253 | 501 | 1330 | 507 | 447.26 | 2140 | 303.5 | 399.9 |

| | | |
|--|---------------------------------|---------------------------------|
| Site Number: 21 | Date Sampled: 10/30/2000 | Conductivity (umhos/cm): |
| Site Midpoint (Latitude, Longitude): 44.56633159, -104.00688164 | Site Length (m): 100 | pH: 8.2 |
| Survey Completed by: South Dakota Game, Fish and Parks | Mean Width (m): 13.4 | Water Temperature (C): |
| Stream Classification: BR1 | 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 | 3 | 3 | 4 | 3 | 22 | 0 | 30 | 9 | 0.33 | 48 | 117.7 | 16.3 |
| Brown Trout | >=200mm | 53 | 53 | 55 | 53 | 395 | 95 | 530 | 160 | 85.27 | 853 | 280.8 | 241.8 |
| Brown Trout | All | 56 | 56 | 58 | 56 | 417 | 96 | 560 | 169 | 85.59 | 901 | 272.1 | 229.7 |
| Longnose Sucker | All | 40 | 40 | 41 | 40 | 298 | 138 | 400 | 121 | 123.54 | 644 | 342.4 | 464.2 |
| White Sucker | All | 74 | 74 | 75 | 74 | 551 | 184 | 740 | 223 | 164.55 | 1191 | 288.1 | 334.2 |

Site Number: 31

Site Midpoint (Latitude, Longitude): 44.56201742, -104.00884914

Survey Completed by: South Dakota Game, Fish and Parks

Stream Classification: BR1, RB1

Date Sampled: 06/26/2000

Site Length (m): 100

Mean Width (m): 5.6

Number of Pass: 3

Conductivity (umhos/cm): 1173

pH: 8.2

Water Temperature (C): 18.2

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 | 61 | 88 | 128 | 61 | 1571 | 46 | 880 | 636 | 40.92 | 1416 | 121.1 | 29.2 |
| Brown Trout | >=200mm | 81 | 91 | 104 | 81 | 1625 | 388 | 910 | 658 | 346.72 | 1464 | 268.8 | 239.0 |
| Brown Trout | All | 142 | 175 | 205 | 145 | 3125 | 465 | 1750 | 1266 | 415.29 | 2816 | 205.3 | 148.8 |
| Green Sunfish | All | 1 | 1 | 1 | 1 | 18 | 0 | 10 | 7 | 0.18 | 16 | 82.0 | 11.0 |
| Longnose Dace | All | 6 | 8 | 19 | 6 | 143 | 1 | 80 | 58 | 0.62 | 129 | 82.8 | 4.8 |
| Longnose Sucker | All | 7 | 7 | 8 | 7 | 125 | 86 | 70 | 51 | 76.36 | 113 | 388.4 | 684.1 |
| Rainbow Trout | <200mm | 1 | 1 | 5 | 1 | 18 | 0 | 10 | 7 | 0.06 | 16 | 70.0 | 4.0 |
| Rainbow Trout | >=200mm | 4 | 4 | 4 | 4 | 71 | 40 | 40 | 29 | 35.59 | 64 | 334.3 | 558.0 |
| Rainbow Trout | All | 5 | 5 | 6 | 5 | 89 | 40 | 50 | 36 | 35.65 | 80 | 281.4 | 447.2 |
| White Sucker | All | 7 | 7 | 8 | 7 | 125 | 84 | 70 | 51 | 74.57 | 113 | 363.1 | 668.1 |

Site Number: 35
Site Midpoint (Latitude, Longitude): 44.56066453, -104.01129520
Survey Completed by: South Dakota Game, Fish and Parks
Stream Classification: BR1

Date Sampled: 06/26/2000 **Conductivity (umhos/cm):** 1156
Site Length (m): 100 **pH:** 8.6
Mean Width (m): 4.2 **Water Temperature (C):** 16.0
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 | 54 | 57 | 63 | 54 | 1370 | 51 | 570 | 555 | 45.97 | 917 | 129.5 | 37.6 |
| Brown Trout | >=200mm | 65 | 65 | 66 | 65 | 1563 | 327 | 650 | 633 | 292.14 | 1046 | 268.6 | 209.4 |
| Brown Trout | All | 119 | 121 | 125 | 119 | 2909 | 382 | 1210 | 1178 | 341.33 | 1947 | 205.5 | 131.4 |
| Cutthroat Trout | >=200mm | 1 | 1 | 1 | 1 | 24 | 6 | 10 | 10 | 5.80 | 16 | 294.0 | 270.0 |
| Cutthroat Trout | All | 1 | 1 | 1 | 1 | 24 | 6 | 10 | 10 | 5.80 | 16 | 294.0 | 270.0 |
| Longnose Dace | All | 6 | 6 | 9 | 6 | 144 | 1 | 60 | 58 | 0.90 | 97 | 90.5 | 7.0 |
| Longnose Sucker | All | 1 | 1 | 1 | 1 | 24 | 15 | 10 | 10 | 13.31 | 16 | 395.0 | 620.0 |

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 | |
|--|---|
| 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 Crow Creek (Trib. of Redwater), 1990-2000

Site 14

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|----------------------|--------------|----------|------------|-----------------------|
| Brown Trout <200mm | Aug 24, 1998 | 32 | 32-34 | |
| | Oct 30, 2000 | 4 | 4-4 | |
| Brown Trout >=200mm | Aug 24, 1998 | 12 | 12-12 | BR2 |
| | Oct 30, 2000 | 55 | 52-61 | BR1 |
| Longnose Sucker | Aug 24, 1998 | 47 | 46-50 | |
| | Oct 30, 2000 | 53 | 52-56 | |
| Rainbow Trout <200mm | Oct 30, 2000 | 1 | 1-2 | |

| | | | | |
|-----------------------|--------------|-----|---------|-----|
| Rainbow Trout >=200mm | Oct 30, 2000 | 1 | 1-1 | RB2 |
| White Sucker | Aug 24, 1998 | 53 | 53-54 | |
| | Oct 30, 2000 | 133 | 131-137 | |

Site 21

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|---------------------|--------------|----------|------------|-----------------------|
| Brown Trout <200mm | Aug 18, 1998 | 23 | 23-24 | |
| | Oct 30, 2000 | 3 | 3-4 | |
| Brown Trout >=200mm | Aug 18, 1998 | 16 | 16-18 | BR2 |
| | Oct 30, 2000 | 53 | 53-55 | BR1 |
| Longnose Dace | Aug 18, 1998 | 1 | 1-1 | |
| Longnose Sucker | Aug 18, 1998 | 29 | 29-30 | |
| | Oct 30, 2000 | 40 | 40-41 | |
| White Sucker | Aug 18, 1998 | 24 | 24-25 | |
| | Oct 30, 2000 | 74 | 74-75 | |

Site 31

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|--------------------|--------------|----------|------------|-----------------------|
| Brown Trout <200mm | Aug 17, 1998 | 115 | 93-140 | |

| | | | | |
|-----------------------|--------------|----|--------|-----|
| Brown Trout <200mm | Jun 26, 2000 | 88 | 61-128 | |
| Brown Trout >=200mm | Aug 17, 1998 | 62 | 60-66 | BR1 |
| | Jun 26, 2000 | 91 | 81-104 | BR1 |
| Green Sunfish | Aug 17, 1998 | 2 | 3-4 | |
| | Jun 26, 2000 | 1 | 1-1 | |
| Longnose Dace | Aug 17, 1998 | 5 | 5-5 | |
| | Jun 26, 2000 | 8 | 6-19 | |
| Longnose Sucker | Aug 17, 1998 | 9 | 9-9 | |
| | Jun 26, 2000 | 7 | 7-8 | |
| Rainbow Trout <200mm | Jun 26, 2000 | 1 | 1-5 | |
| Rainbow Trout >=200mm | Jun 26, 2000 | 4 | 4-4 | RB1 |
| White Sucker | Aug 17, 1998 | 16 | 16-17 | |
| | Jun 26, 2000 | 7 | 7-8 | |

Site 35

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|---------------------|--------------|-----------------|-------------------|------------------------------|
| Brown Trout <200mm | Sep 25, 1997 | 35 | 34-39 | |

| | | | | |
|-------------------------|--------------|-----|---------|-----|
| Brown Trout <200mm | Aug 17, 1998 | 202 | 173-231 | |
| | Jun 26, 2000 | 57 | 54-63 | |
| Brown Trout >=200mm | Sep 25, 1997 | 36 | 35-40 | BR1 |
| | Aug 17, 1998 | 43 | 43-44 | BR1 |
| | Jun 26, 2000 | 65 | 65-66 | BR1 |
| Cutthroat Trout >=200mm | Jun 26, 2000 | 1 | 1-1 | |
| Green Sunfish | Sep 25, 1997 | 1 | 1-2 | |
| | Aug 17, 1998 | 8 | 4-42 | |
| Longnose Dace | Sep 25, 1997 | 46 | 41-55 | |
| | Aug 17, 1998 | 22 | 23-30 | |
| | Jun 26, 2000 | 6 | 6-9 | |
| Longnose Sucker | Sep 25, 1997 | 6 | 6-6 | |
| | Aug 17, 1998 | 8 | 8-9 | |
| | Jun 26, 2000 | 1 | 1-1 | |
| Rainbow Trout <200mm | Sep 25, 1997 | 4 | 4-4 | |
| Rainbow Trout >=200mm | Sep 25, 1997 | 2 | 2-2 | RB2 |

White Sucker

Sep 25, 1997

31

23-50

Aug 17, 1998

10

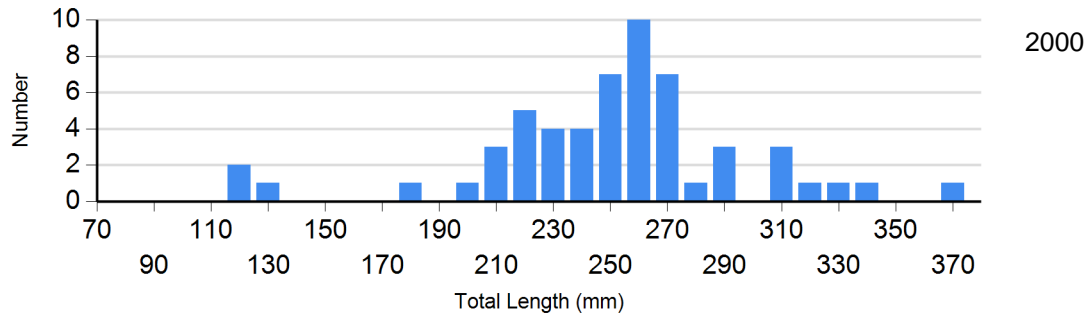
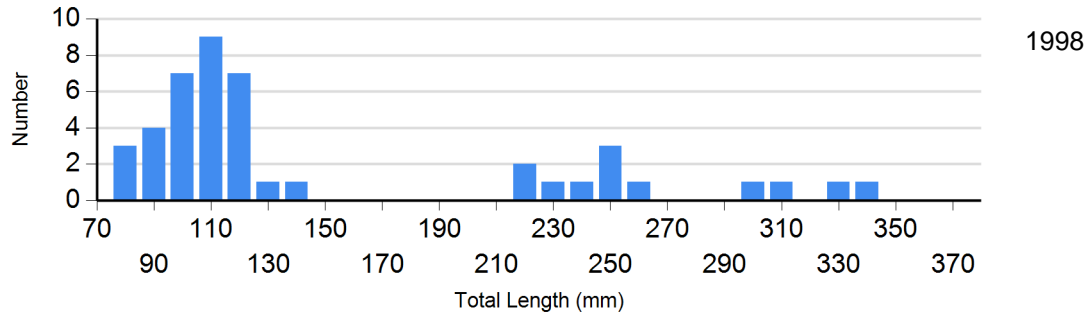
10-11

Length Frequency Distribution

Length frequency histogram of species sampled by year.

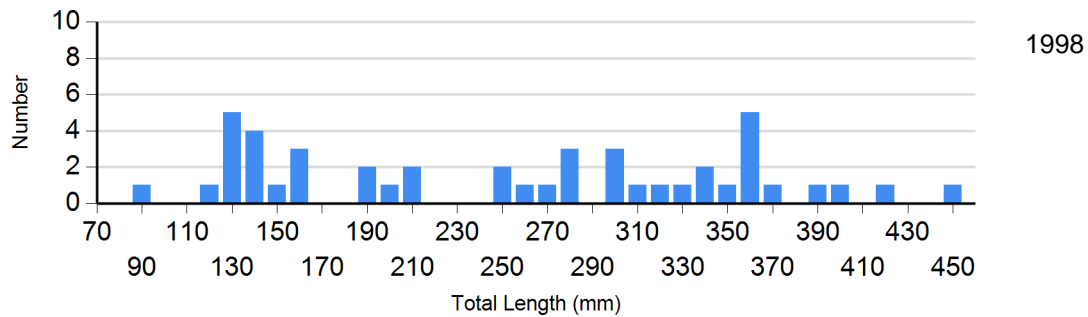
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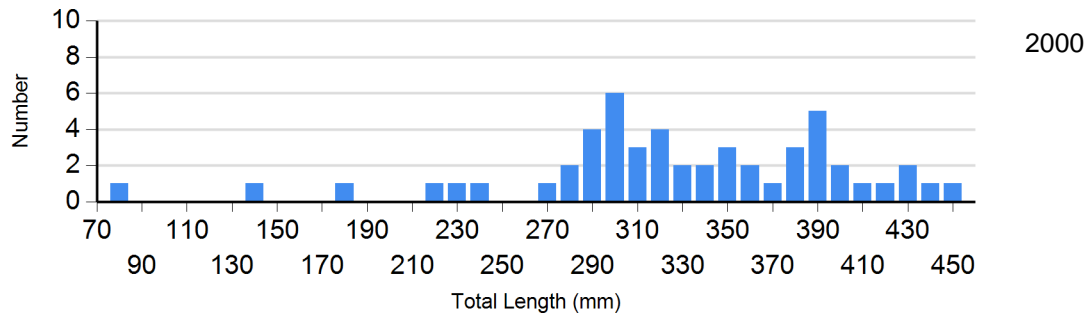
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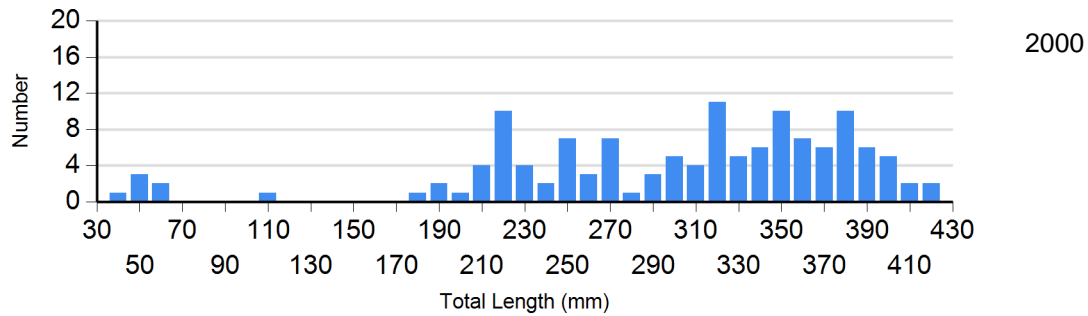
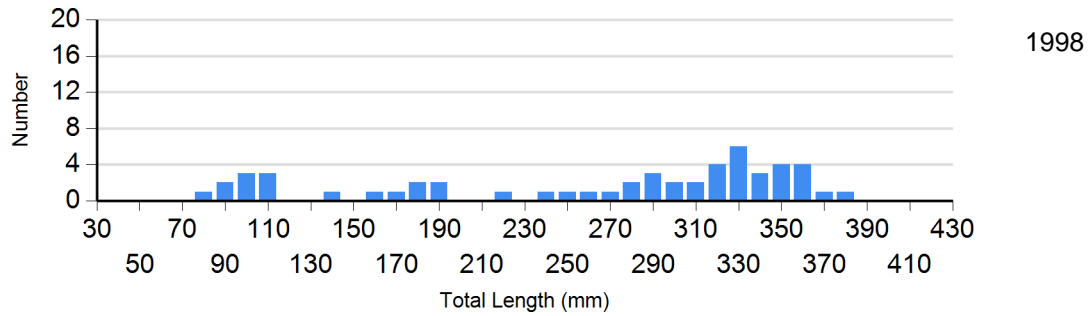
Site: 14

Species: Longnose Sucker

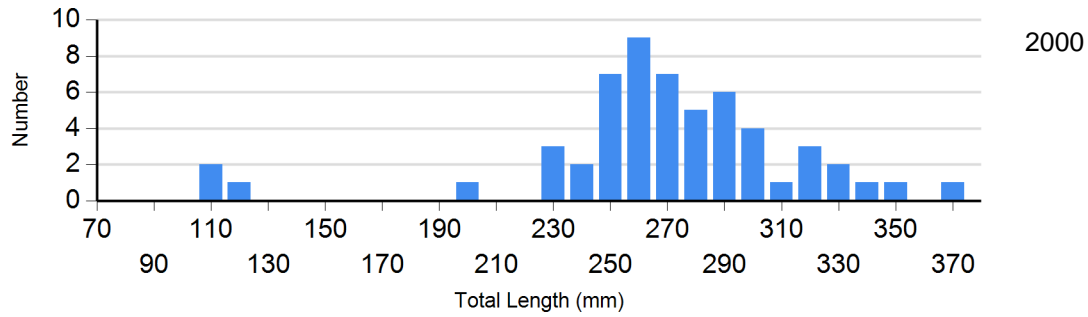
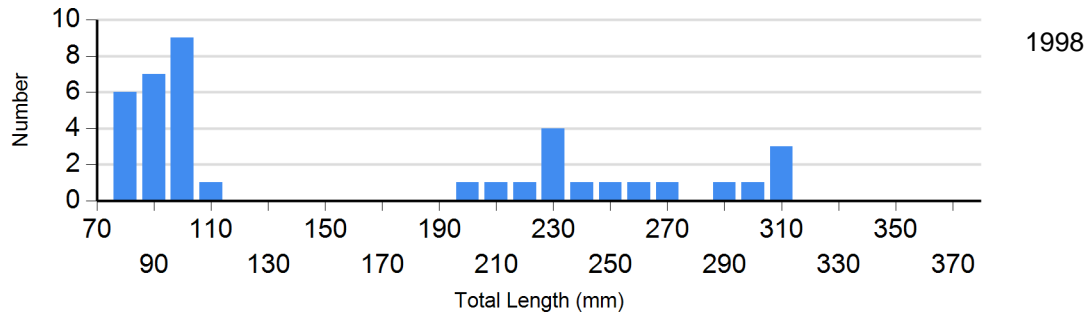




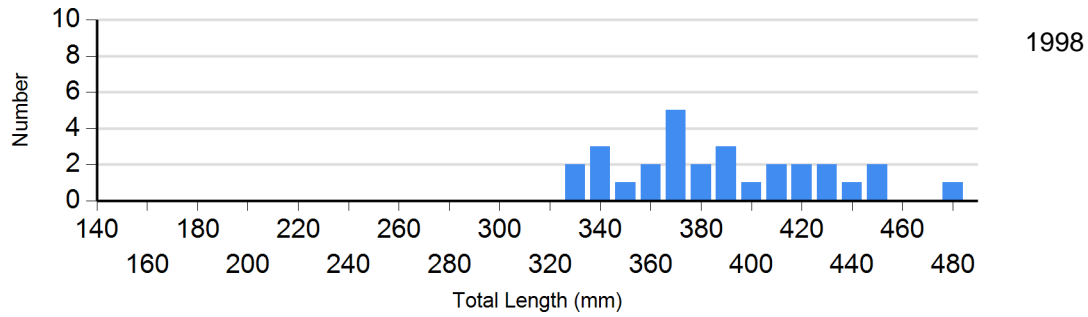
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Species: White Sucker

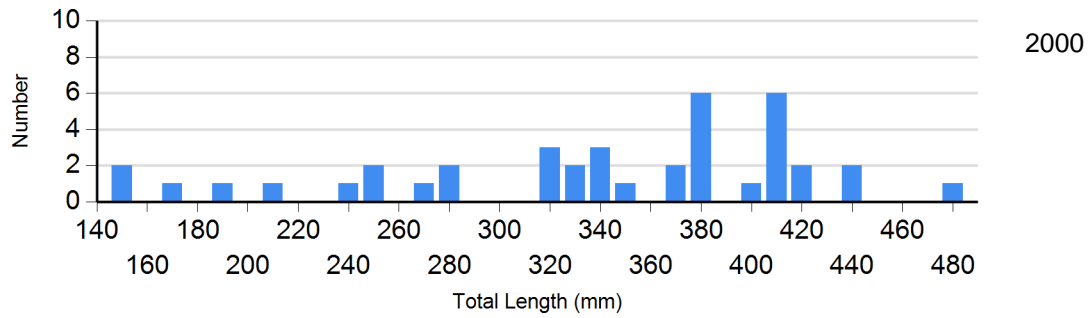


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Species: Brown Trout

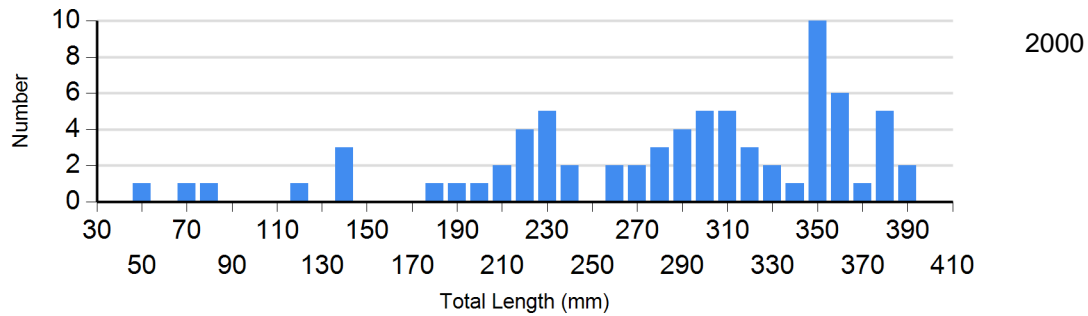
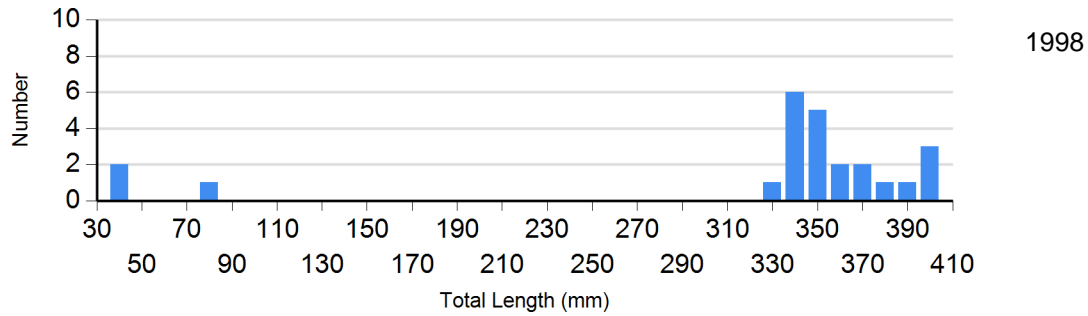


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Species: Longnose Sucker

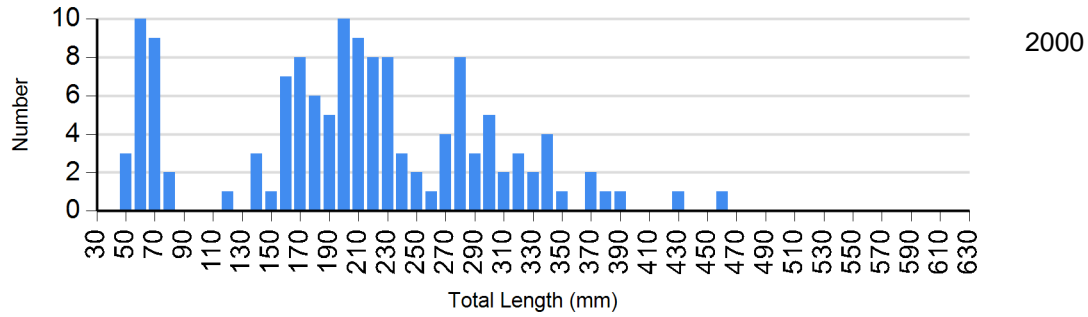
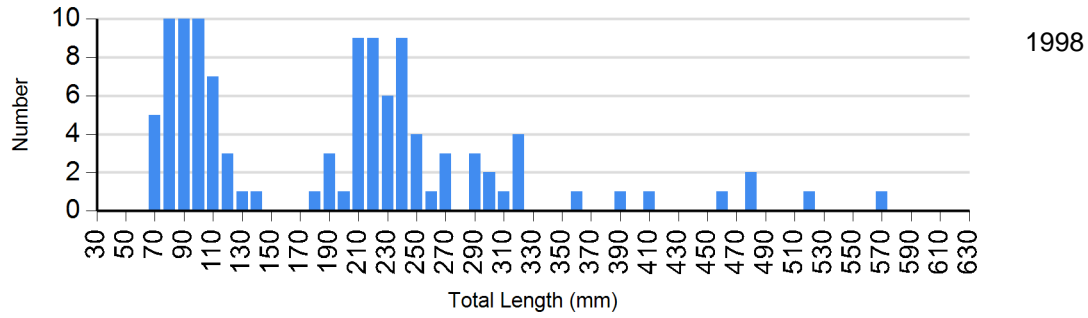




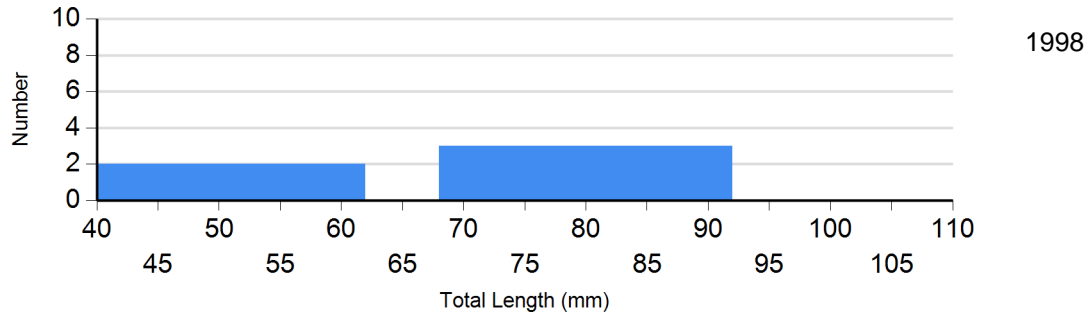
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Species: White Sucker

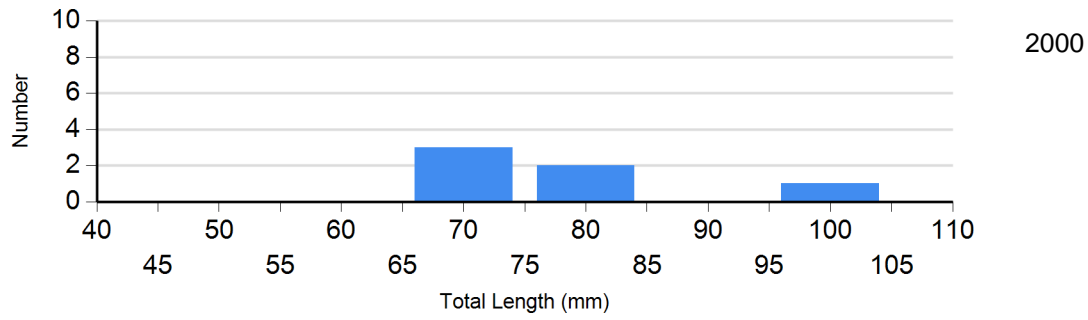


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Species: Brown Trout

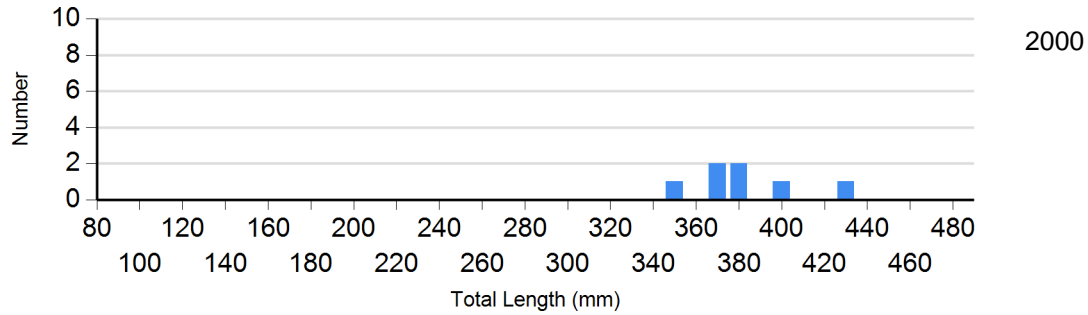
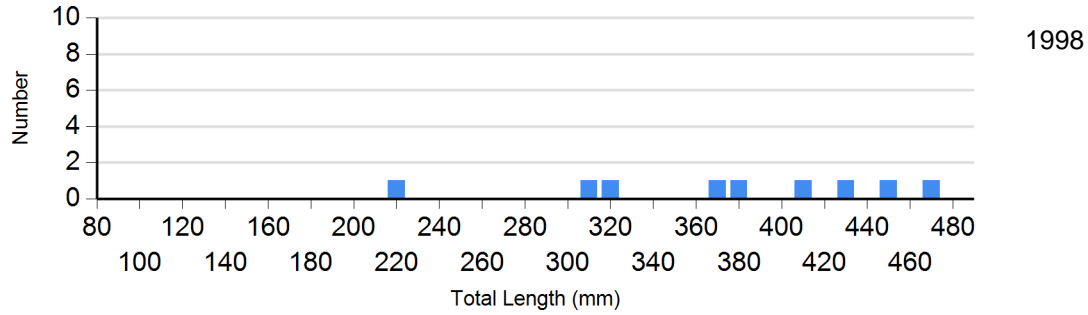


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Species: Longnose Dace

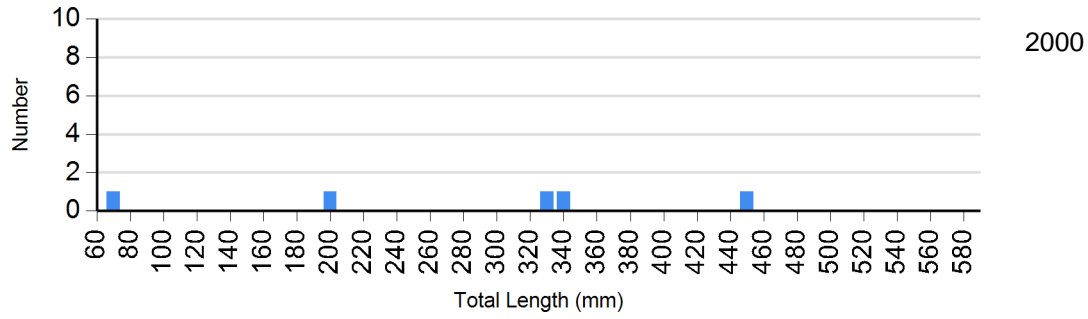




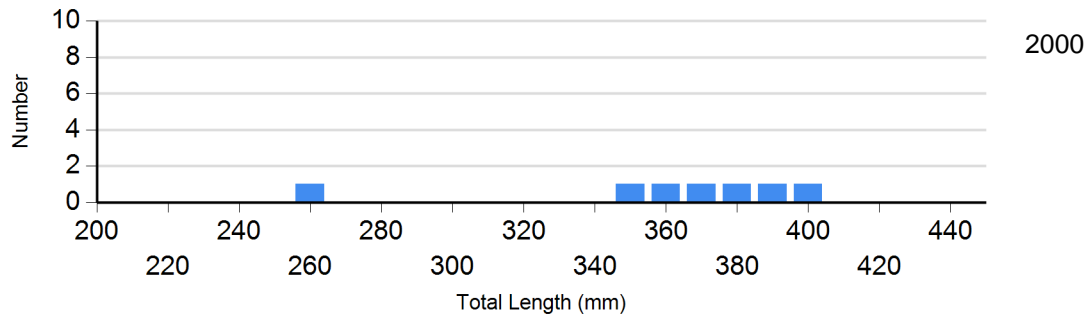
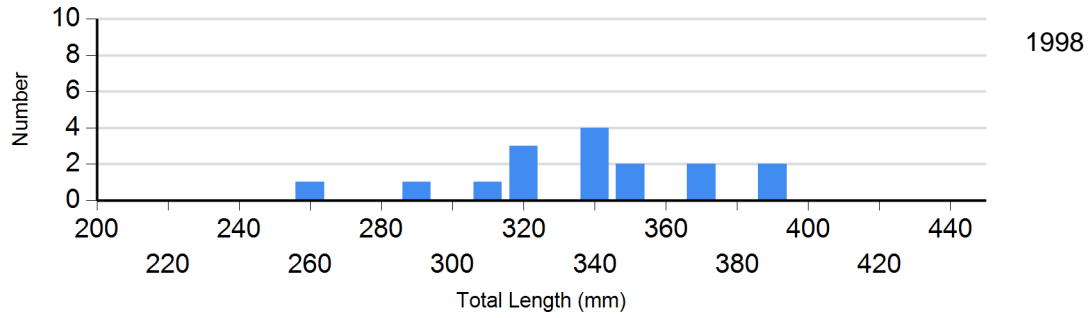
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Species: Longnose Sucker



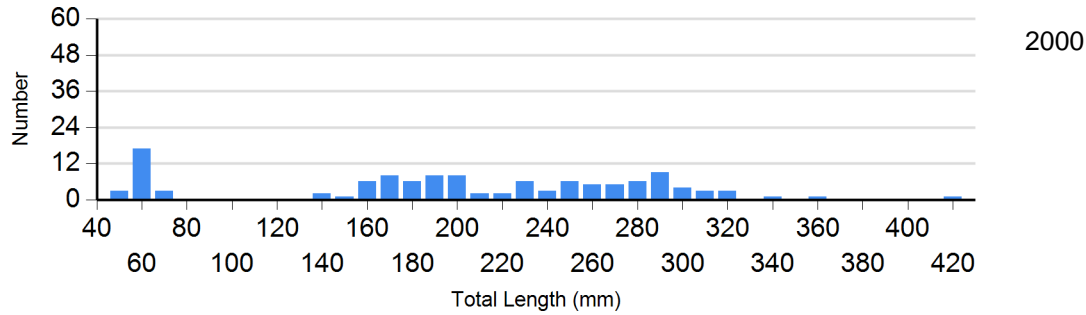
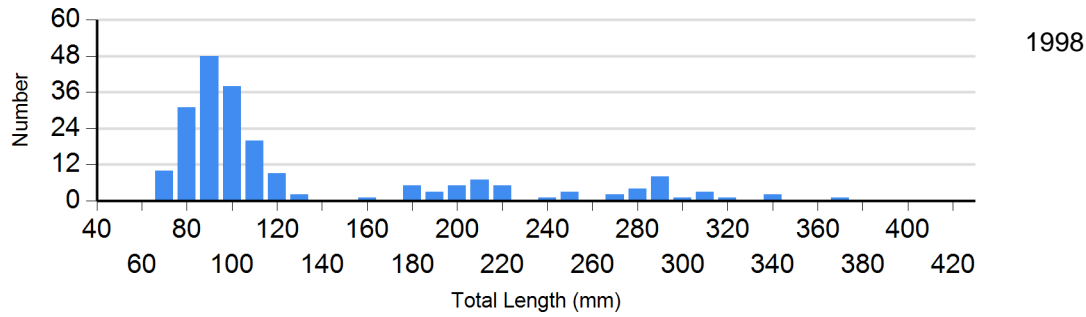
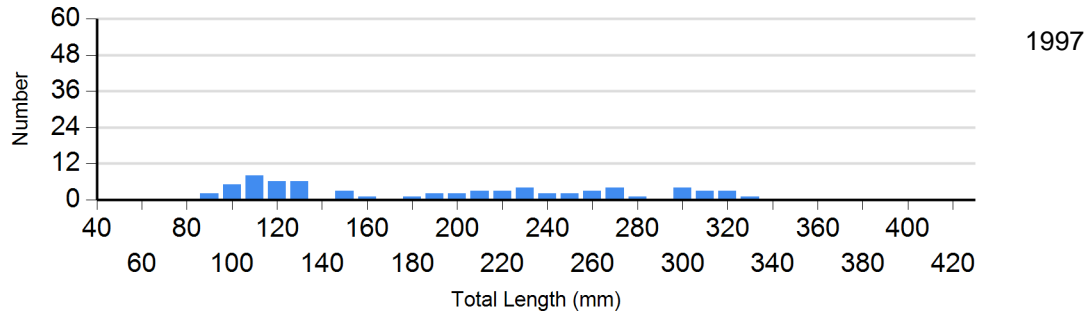
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Species: Rainbow Trout



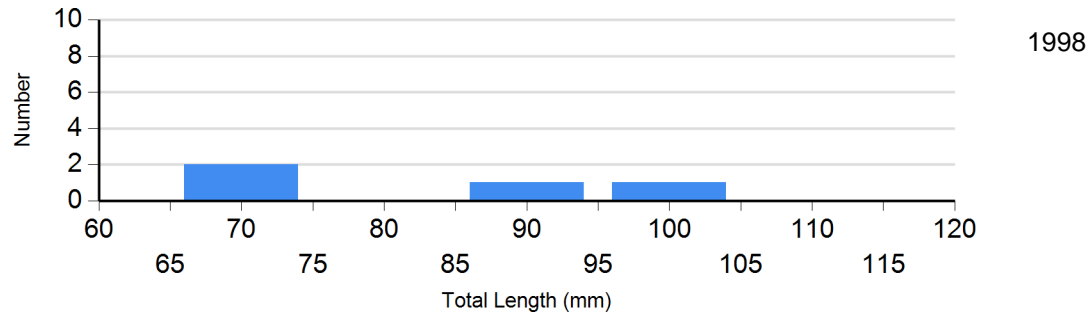
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Species: White Sucker



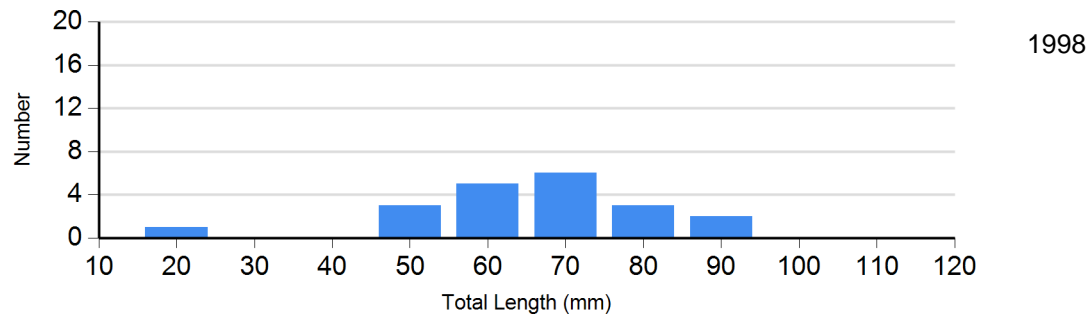
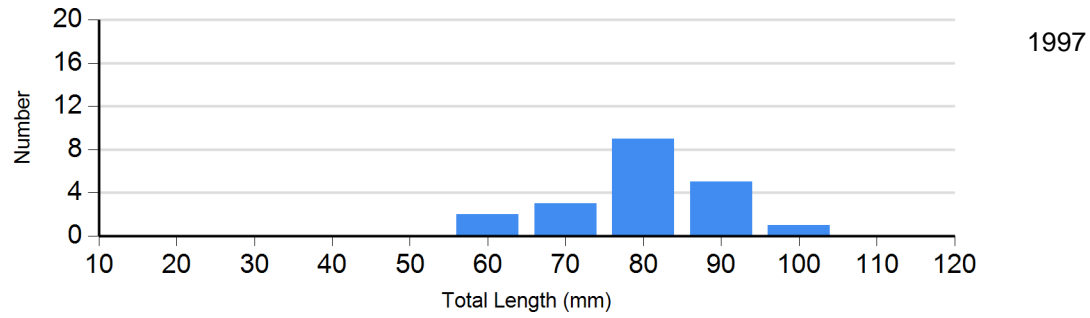
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Species: Brown Trout

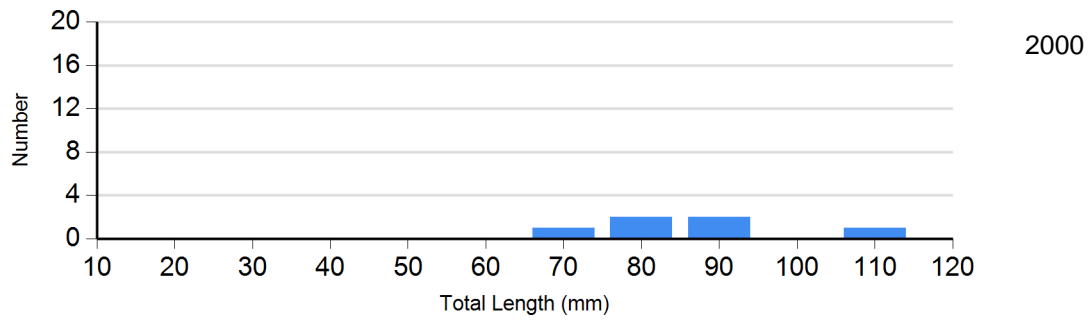


Site: 35
Species: Green Sunfish

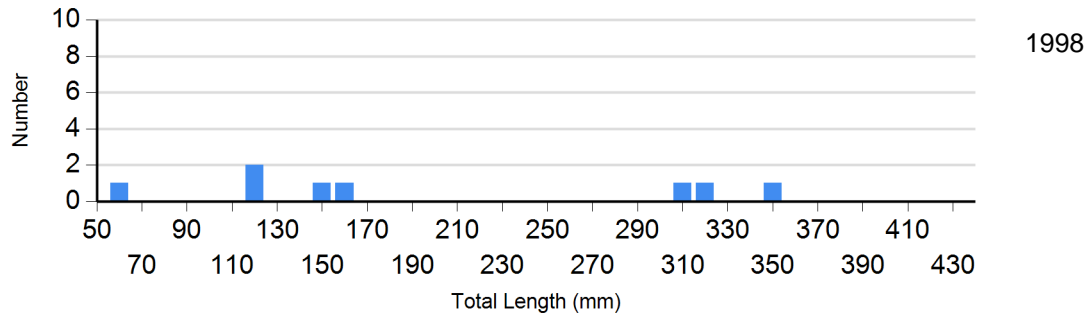
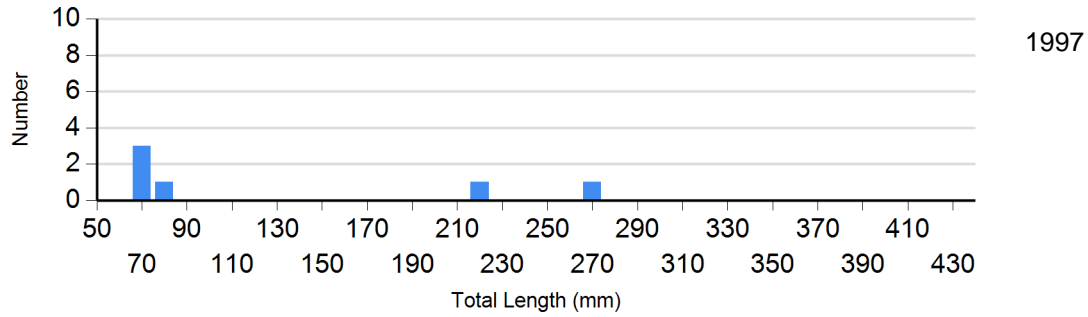


Site: 35
Species: Longnose Dace

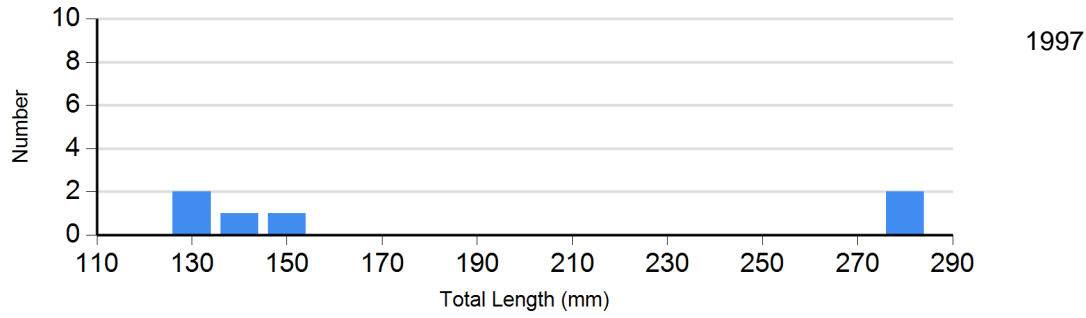




Site: 35
Species: Longnose Sucker



Site: 35
Species: Rainbow Trout



Site: 35
Species: White Sucker

