

**SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY**  
**East Spearfish Creek (Hanna), Lawrence County**  
**09-0016-00**  
**1992**

Table 1. Population and Biomass Estimates for East Spearfish Creek (Hanna)

|  |                                 |                                     |
|--|---------------------------------|-------------------------------------|
| <b>Site Number:</b> 37   | <b>Date Sampled:</b> 10/01/1992 | <b>Conductivity (umhos/cm):</b> 285 |
| <b>Site Midpoint (Latitude, Longitude):</b> 44.27474914, -103.85439849 | <b>Site Length (m):</b> 100     | <b>pH:</b>                          |
| <b>Survey Completed by:</b> South Dakota Game, Fish and Parks          | <b>Mean Width (m):</b> 2.5      | <b>Water Temperature (C):</b> 11.0  |
| <b>Stream Classification:</b> BR1                                      | <b>Number of Pass:</b> 3        | <b>Voltage:</b>                     |

| 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     | 220                   | 222            | 226          | 220          | 8810           | 243             | 2220     | 3568       | 217.10       | 3572       | 121.4            | 27.6                |
| Brown Trout | >=200mm    | 95                    | 95             | 96           | 95           | 3770           | 472             | 950      | 1527       | 421.57       | 1529       | 228.8            | 125.2               |
| Brown Trout | All        | 315                   | 317            | 320          | 315          | 12579          | 763             | 3170     | 5095       | 681.61       | 5101       | 153.8            | 60.7                |

|  |                                 |                                     |
|--|---------------------------------|-------------------------------------|
| <b>Site Number:</b> 41   | <b>Date Sampled:</b> 10/02/1992 | <b>Conductivity (umhos/cm):</b> 300 |
| <b>Site Midpoint (Latitude, Longitude):</b> 44.27433541, -103.85066615 | <b>Site Length (m):</b> 100     | <b>pH:</b>                          |
| <b>Survey Completed by:</b> South Dakota Game, Fish and Parks          | <b>Mean Width (m):</b> 2.4      | <b>Water Temperature (C):</b> 11.0  |
| <b>Stream Classification:</b> BK0, BR1                                 | <b>Number of Pass:</b> 3        | <b>Voltage:</b>                     |

| 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     | 1                     | 1              | 1            | 1            | 42             | 1               | 10       | 17         | 0.74         | 16         | 135.0            | 20.0                |
| Brook Trout | All        | 1                     | 1              | 1            | 1            | 42             | 1               | 10       | 17         | 0.74         | 16         | 135.0            | 20.0                |
| Brown Trout | <200mm     | 171                   | 228            | 276          | 180          | 9500           | 155             | 2280     | 3848       | 138.44       | 3669       | 99.8             | 16.3                |
| Brown Trout | >=200mm    | 33                    | 33             | 33           | 33           | 1375           | 178             | 330      | 557        | 159.34       | 531        | 225.7            | 129.8               |
| Brown Trout | All        | 204                   | 241            | 269          | 213          | 10042          | 348             | 2410     | 4067       | 310.91       | 3878       | 120.2            | 34.7                |

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 East Spearfish Creek (Hanna), 1982-1992

**Site 37**

| Species/Size        | Date         | Pop Est. | (95% C.I.) | Stream Classification |
|---------------------|--------------|----------|------------|-----------------------|
| Brook Trout <200mm  | Sep 22, 1988 | 1        | 1-1        |                       |
| Brown Trout <200mm  | Sep 22, 1988 | 187      | 177-198    |                       |
|                     | Oct 01, 1992 | 222      | 220-226    |                       |
| Brown Trout >=200mm | Sep 22, 1988 | 86       | 85-89      | BR3                   |
|                     | Oct 01, 1992 | 95       | 95-96      | BR1                   |

**Site 41**

| Species/Size       | Date         | Pop Est. | (95% C.I.) | Stream Classification |
|--------------------|--------------|----------|------------|-----------------------|
| Brook Trout <200mm | Oct 02, 1992 | 1        | 1-1        |                       |

|                     |              |     |         |     |
|---------------------|--------------|-----|---------|-----|
| Brown Trout <200mm  | Sep 21, 1988 | 99  | 89-112  |     |
|                     | Oct 02, 1992 | 228 | 180-276 |     |
| Brown Trout >=200mm | Sep 21, 1988 | 80  | 78-84   | BR3 |
|                     | Oct 02, 1992 | 33  | 33-33   | BR1 |

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**Site 54**

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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 21, 1988 | 5               | 5-5               |                              |
| Brown Trout <200mm  | Sep 21, 1988 | 86              | 75-101            |                              |
|                     | Sep 13, 1990 | 96              | 89-106            |                              |
| Brown Trout >=200mm | Sep 21, 1988 | 95              | 94-98             | BR3                          |
|                     | Sep 13, 1990 | 39              | 39-40             | BR3                          |

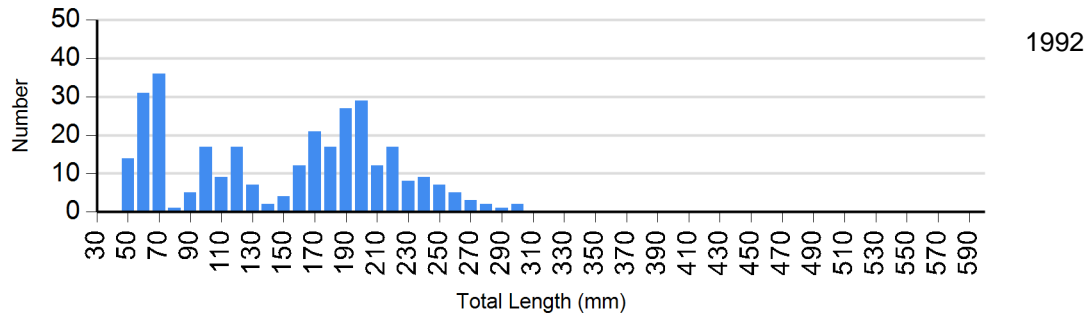
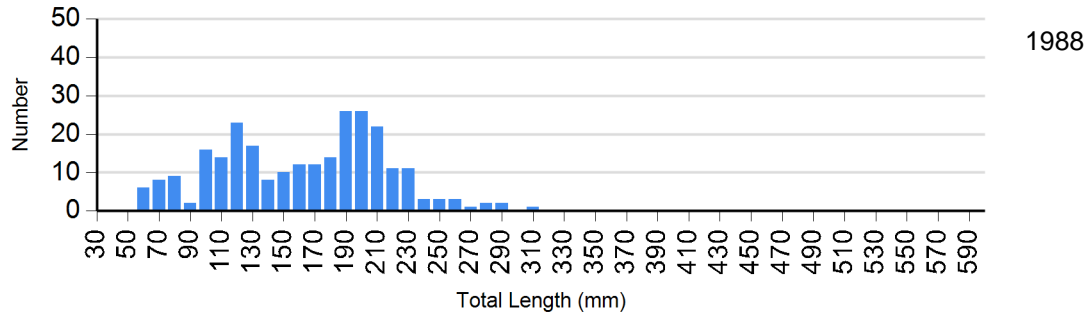
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## Length Frequency Distribution

Length frequency histogram of species sampled by year.

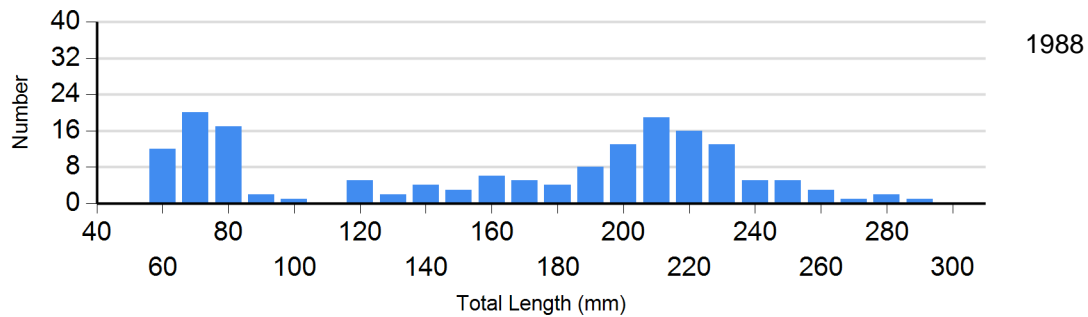
**Site:** 37

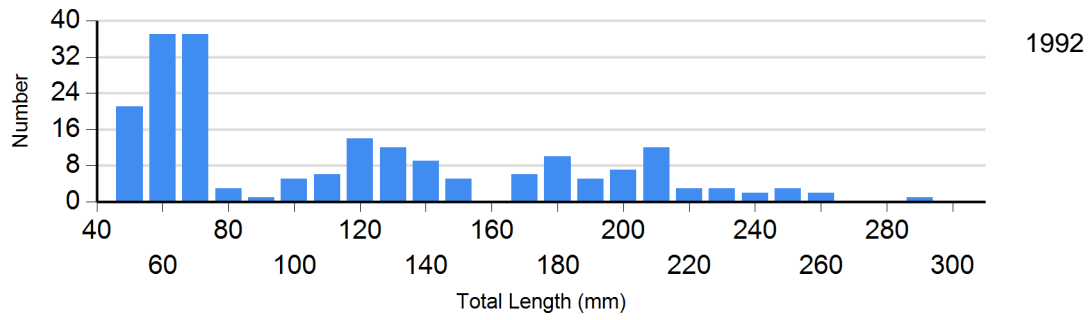
**Species:** Brown Trout



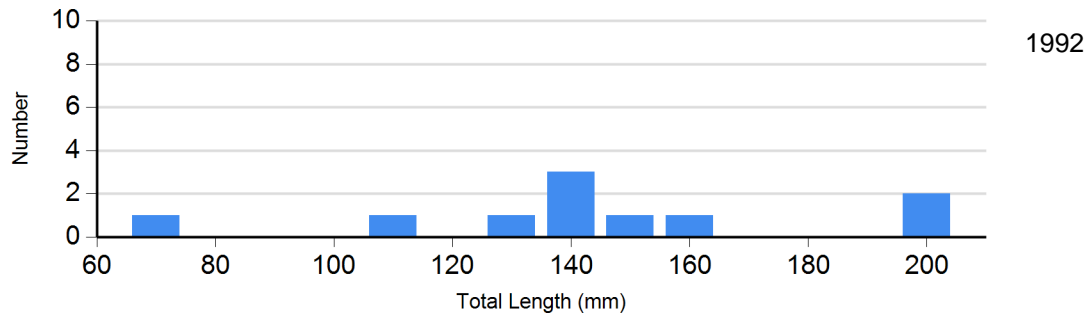
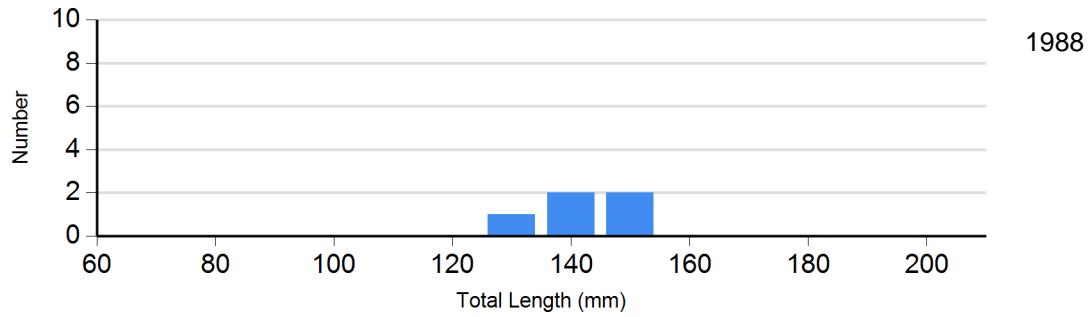
**Site:** 41

**Species:** Brown Trout





Site: 54  
Species: Brook Trout



Site: 54  
Species: Brown Trout

