

SOUTH DAKOTA BLACK HILLS COLD STREAM SURVEY
Deadwood Creek, Lawrence County
09-0060-00
2010

Table 1. Population and Biomass Estimates for Deadwood Creek

| | | |
|--|---------------------------------|---------------------------------|
| Site Number: 8 | Date Sampled: 08/31/2010 | Conductivity (umhos/cm): |
| Site Midpoint (Latitude, Longitude): 44.37166357, -103.73844669 | Site Length (m): 100 | pH: |
| Survey Completed by: Unknown Consultant Firm for mining | Mean Width (m): 0.0 | Water Temperature (C): |
| Stream Classification: BK0 | 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) |
|-------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Brook Trout | <200mm | 1 | 1 | 1 | 1 | 0 | 0 | 10 | 0 | 0.00 | 16 | 92.0 | 8.0 |
| Brook Trout | All | 1 | 1 | 1 | 1 | 0 | 0 | 10 | 0 | 0.00 | 16 | 92.0 | 8.0 |

| | | |
|--|---------------------------------|---------------------------------|
| Site Number: 46 | Date Sampled: 08/26/2010 | Conductivity (umhos/cm): |
| Site Midpoint (Latitude, Longitude): 44.36428734, -103.77938126 | Site Length (m): 100 | pH: |
| Survey Completed by: | Mean Width (m): 1.4 | Water Temperature (C): |
| Stream Classification: BK2 | 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) |
|-------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Brook Trout | <200mm | 166 | 168 | 172 | 166 | 11696 | 142 | 1680 | 4737 | 127.19 | 2703 | 102.1 | 12.2 |
| Brook Trout | >=200mm | 3 | 3 | 4 | 3 | 209 | 16 | 30 | 85 | 13.86 | 48 | 203.3 | 74.3 |
| Brook Trout | All | 169 | 171 | 175 | 169 | 11905 | 158 | 1710 | 4822 | 141.19 | 2751 | 103.9 | 13.3 |

| | | |
|--|---------------------------------|---------------------------------|
| Site Number: 46 | Date Sampled: 08/26/2010 | Conductivity (umhos/cm): |
| Site Midpoint (Latitude, Longitude): 44.36428734, -103.77938126 | Site Length (m): 100 | pH: |
| Survey Completed by: Unknown Consultant Firm for mining | Mean Width (m): 1.4 | Water Temperature (C): |
| Stream Classification: BK2 | | |

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) |
|-------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Brook Trout | <200mm | 166 | 168 | 172 | 166 | 11696 | 145 | 1680 | 4737 | 129.16 | 2703 | 102.4 | 12.4 |
| Brook Trout | >=200mm | 3 | 3 | 4 | 3 | 209 | 16 | 30 | 85 | 13.86 | 48 | 203.3 | 74.3 |
| Brook Trout | All | 169 | 171 | 175 | 169 | 11905 | 160 | 1710 | 4822 | 143.16 | 2751 | 104.2 | 13.5 |

Site Number: 46

Date Sampled: 08/31/2010

Conductivity (umhos/cm):

Site Midpoint (Latitude, Longitude): 44.36428734, -103.77938126

Site Length (m): 100

pH:

Survey Completed by: Chadwick Ecological Services

Mean Width (m): 0.0

Water Temperature (C):

Stream Classification: BK0, BR0

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) |
|-------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Brook Trout | <200mm | 4 | 4 | 4 | 4 | 0 | 0 | 40 | 0 | 0.00 | 64 | 149.8 | 42.3 |
| Brook Trout | All | 4 | 4 | 4 | 4 | 0 | 0 | 40 | 0 | 0.00 | 64 | 149.8 | 42.3 |
| Brown Trout | <200mm | 1 | 1 | 1 | 1 | 0 | 0 | 10 | 0 | 0.00 | 16 | 164.0 | 47.0 |
| Brown Trout | All | 1 | 1 | 1 | 1 | 0 | 0 | 10 | 0 | 0.00 | 16 | 164.0 | 47.0 |

Site Number: 49

Date Sampled: 08/31/2010

Conductivity (umhos/cm):

Site Midpoint (Latitude, Longitude): 44.36269958, -103.78234679

Site Length (m): 100

pH:

Survey Completed by: Unknown Consultant Firm for mining

Mean Width (m): 1.5

Water Temperature (C):

Stream Classification: BK0, BR0

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) |
|-------------|------------|-----------------------|----------------|--------------|--------------|----------------|-----------------|----------|------------|--------------|------------|------------------|---------------------|
| Brook Trout | <200mm | 4 | 4 | 4 | 4 | 261 | 11 | 40 | 106 | 9.84 | 64 | 149.8 | 42.3 |
| Brook Trout | All | 4 | 4 | 4 | 4 | 261 | 11 | 40 | 106 | 9.84 | 64 | 149.8 | 42.3 |

| | | | | | | | | | | | | | |
|-------------|--------|---|---|---|---|----|---|----|----|------|----|-------|------|
| Brown Trout | <200mm | 1 | 1 | 1 | 1 | 65 | 3 | 10 | 26 | 2.74 | 16 | 164.0 | 47.0 |
| Brown Trout | All | 1 | 1 | 1 | 1 | 65 | 3 | 10 | 26 | 2.74 | 16 | 164.0 | 47.0 |

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 Deadwood Creek, 2000-2010

Site 8

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|---------------------|--------------|----------|------------|-----------------------|
| Brook Trout <200mm | Aug 25, 2004 | 60 | 59-63 | |
| | Aug 30, 2005 | 159 | 151-168 | |
| | Aug 29, 2006 | 114 | 107-123 | |
| | Sep 09, 2008 | 41 | 41-42 | |
| | Sep 01, 2009 | 109 | 103-117 | |
| | Aug 31, 2010 | 1 | 1-1 | |
| Brook Trout >=200mm | Aug 25, 2004 | 2 | 2-2 | BK2 |

| | | | | |
|---------------------|--------------|----|-------|-----|
| Brook Trout >=200mm | Aug 30, 2005 | 5 | 5-5 | BK3 |
| | Aug 29, 2006 | 1 | 1-1 | BK3 |
| | Sep 09, 2008 | 5 | 5-5 | BK3 |
| | Sep 01, 2009 | 5 | 5-5 | BK3 |
| Brown Trout <200mm | Sep 09, 2008 | 14 | 14-16 | |
| | Sep 01, 2009 | 5 | 3-24 | |

Site 46

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|---------------------|--------------|-----------------|-------------------|------------------------------|
| Brook Trout <200mm | Oct 17, 2001 | 204 | 197-211 | |
| | Aug 28, 2002 | 50 | 50-51 | |
| | Sep 10, 2008 | 117 | 115-121 | |
| | Aug 26, 2010 | 168 | 166-172 | |
| | Aug 26, 2010 | 168 | 166-172 | |
| | Aug 31, 2010 | 4 | 4-4 | |
| Brook Trout >=200mm | Oct 17, 2001 | 1 | 1-2 | BK3 |
| | Sep 10, 2008 | 15 | 15-15 | BK3 |

| | | | | |
|---------------------|--------------|----|-------|-----|
| Brook Trout >=200mm | Aug 26, 2010 | 3 | 3-4 | BK2 |
| | Aug 26, 2010 | 3 | 3-4 | BK2 |
| Brown Trout <200mm | Sep 10, 2008 | 11 | 11-12 | |
| | Aug 31, 2010 | 1 | 1-1 | |

Site 49

| Species/Size | Date | Pop Est. | (95% C.I.) | Stream Classification |
|---------------------|--------------|-----------------|-------------------|------------------------------|
| Brook Trout <200mm | Oct 17, 2001 | 216 | 211-222 | |
| | Aug 25, 2004 | 89 | 86-94 | |
| | Aug 29, 2005 | 68 | 66-72 | |
| | Aug 29, 2006 | 43 | 42-46 | |
| | Sep 02, 2009 | 191 | 184-199 | |
| | Aug 31, 2010 | 4 | 4-4 | |
| Brook Trout >=200mm | Aug 25, 2004 | 4 | 4-4 | BK2 |
| | Aug 29, 2005 | 3 | 3-3 | BK3 |
| | Aug 29, 2006 | 5 | 5-5 | BK3 |
| | Sep 02, 2009 | 8 | 8-8 | BK3 |

Brown Trout <200mm

Sep 02, 2009

148

137-159

Aug 31, 2010

1

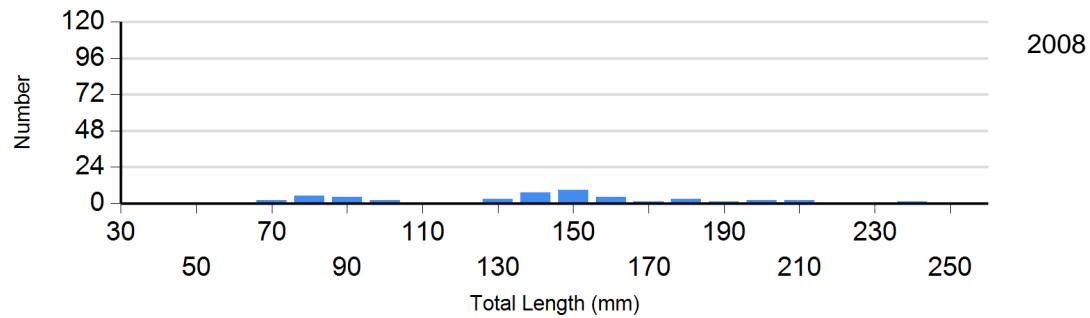
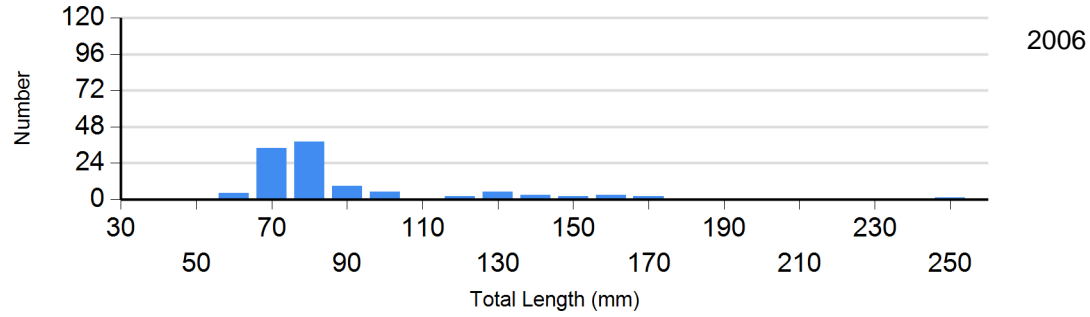
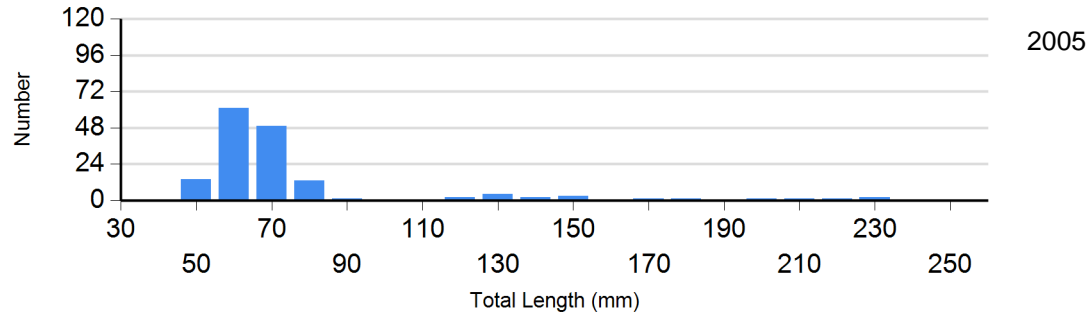
1-1

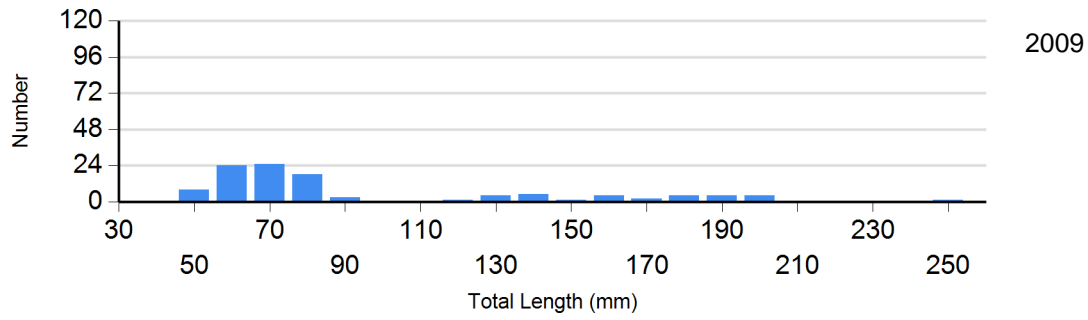
Length Frequency Distribution

Length frequency histogram of species sampled by year.

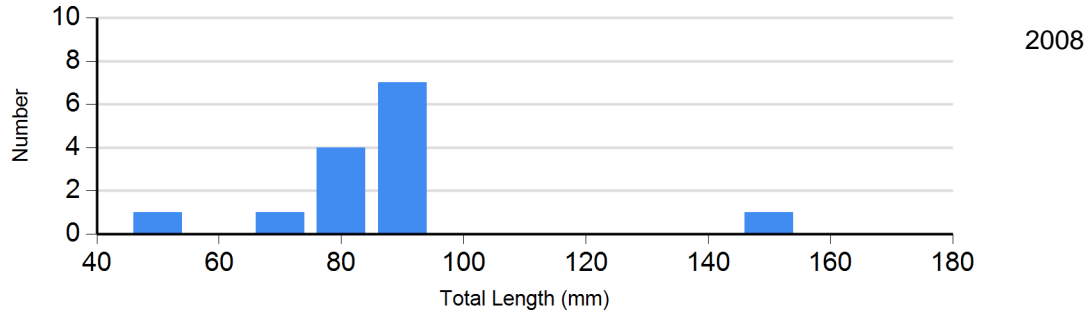
Site: 8

Species: Brook Trout

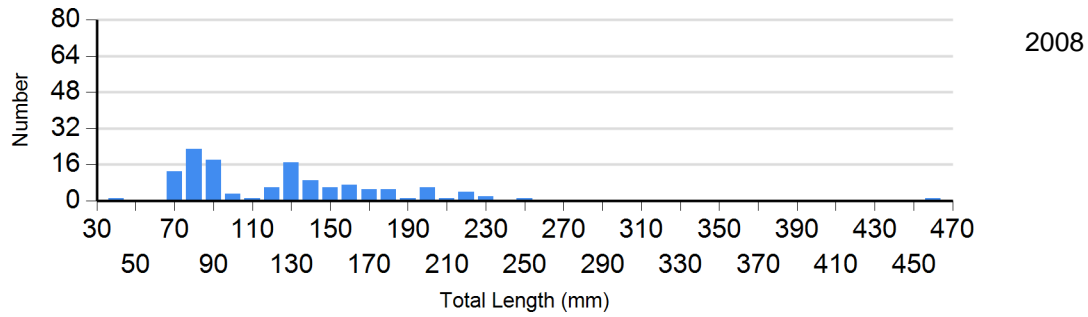


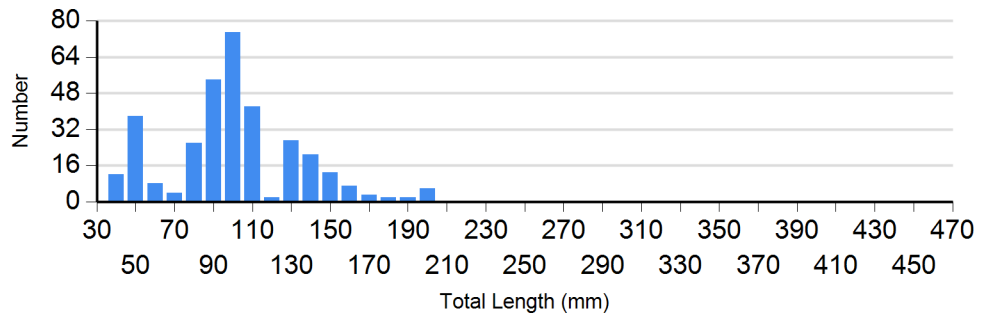


Site: 8
Species: Brown Trout

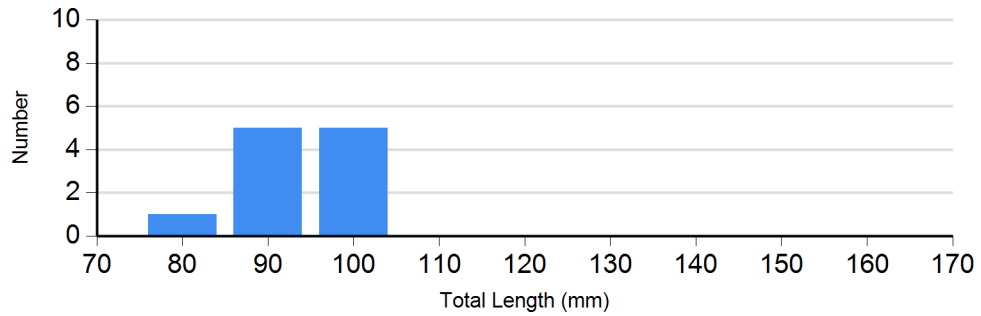


Site: 46
Species: Brook Trout

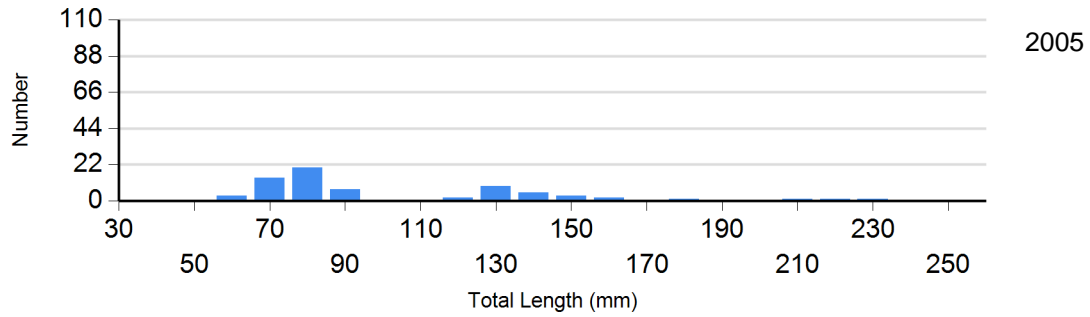


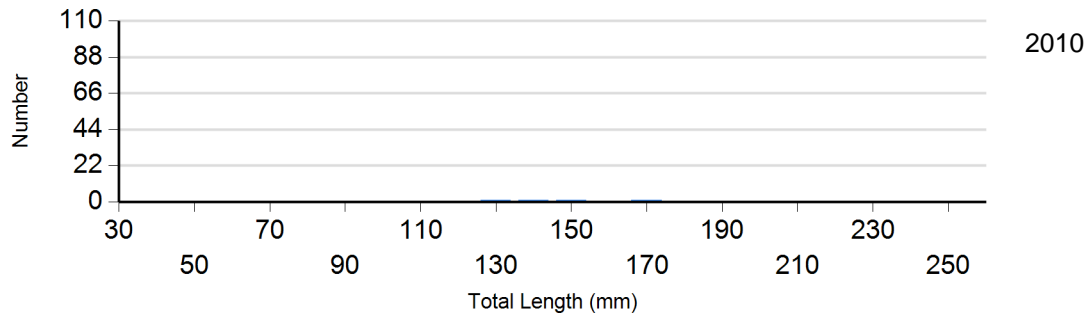
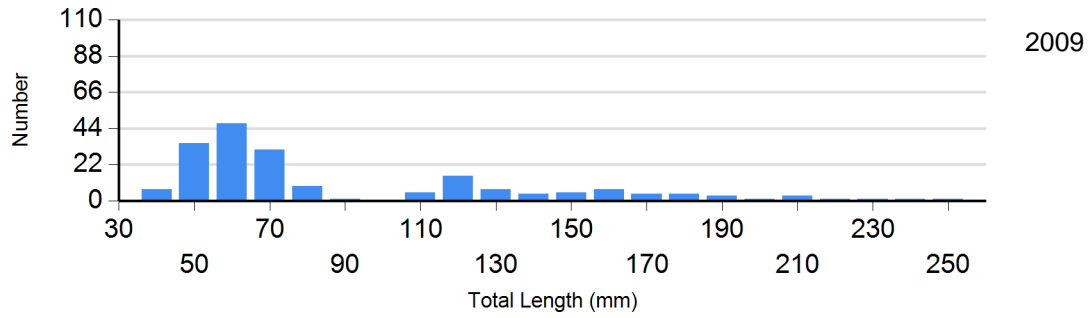
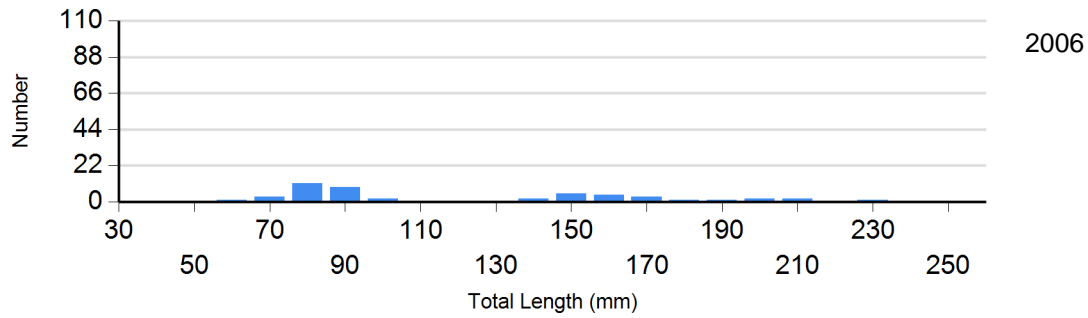


Site: 46
Species: Brown Trout



Site: 49
Species: Brook Trout





Site: 49
Species: Brown Trout

