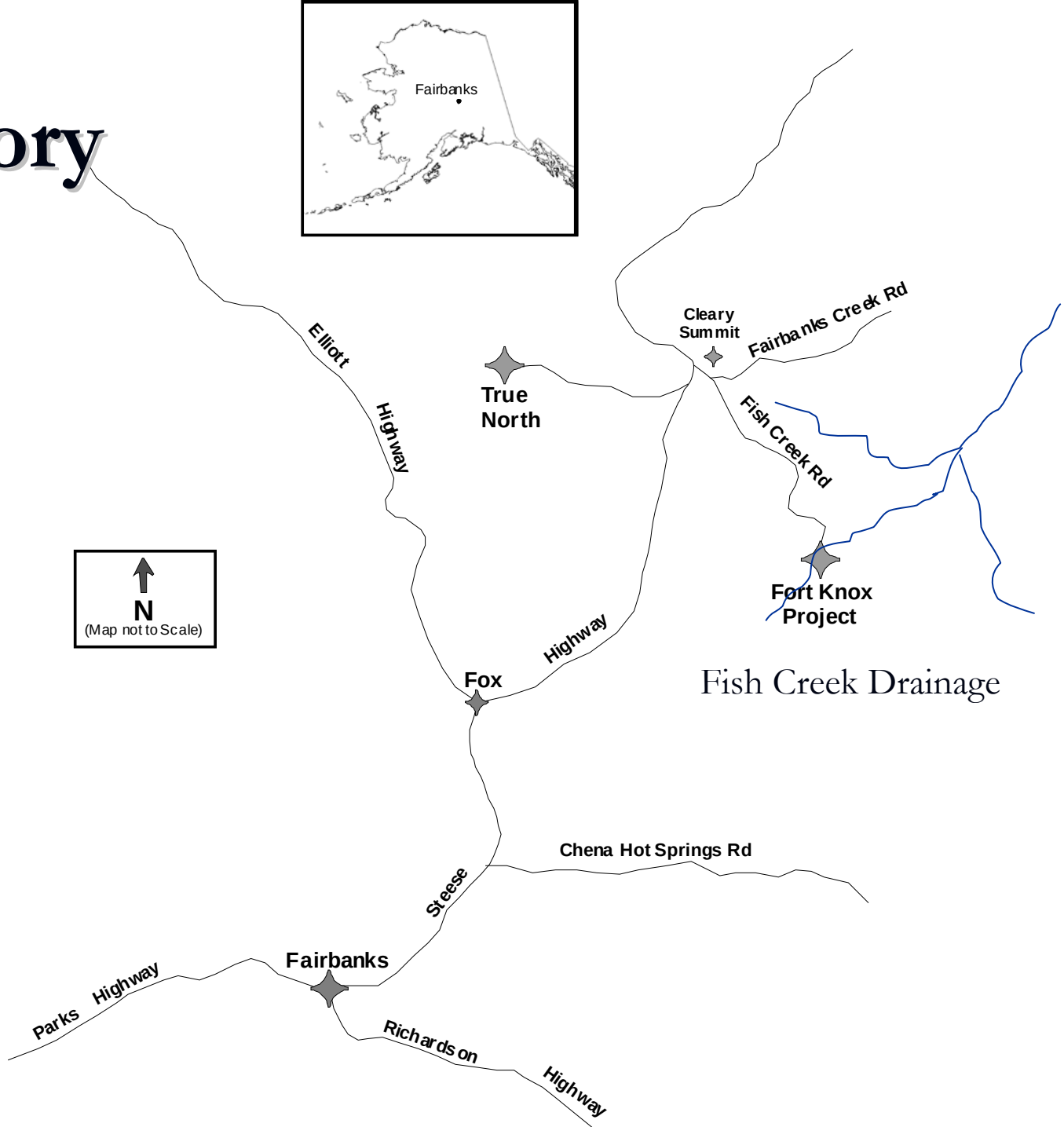
Fort Knox Bio-monitoring Update, 2008

Presented by: Bill Morris
ADF&G, Division of Habitat

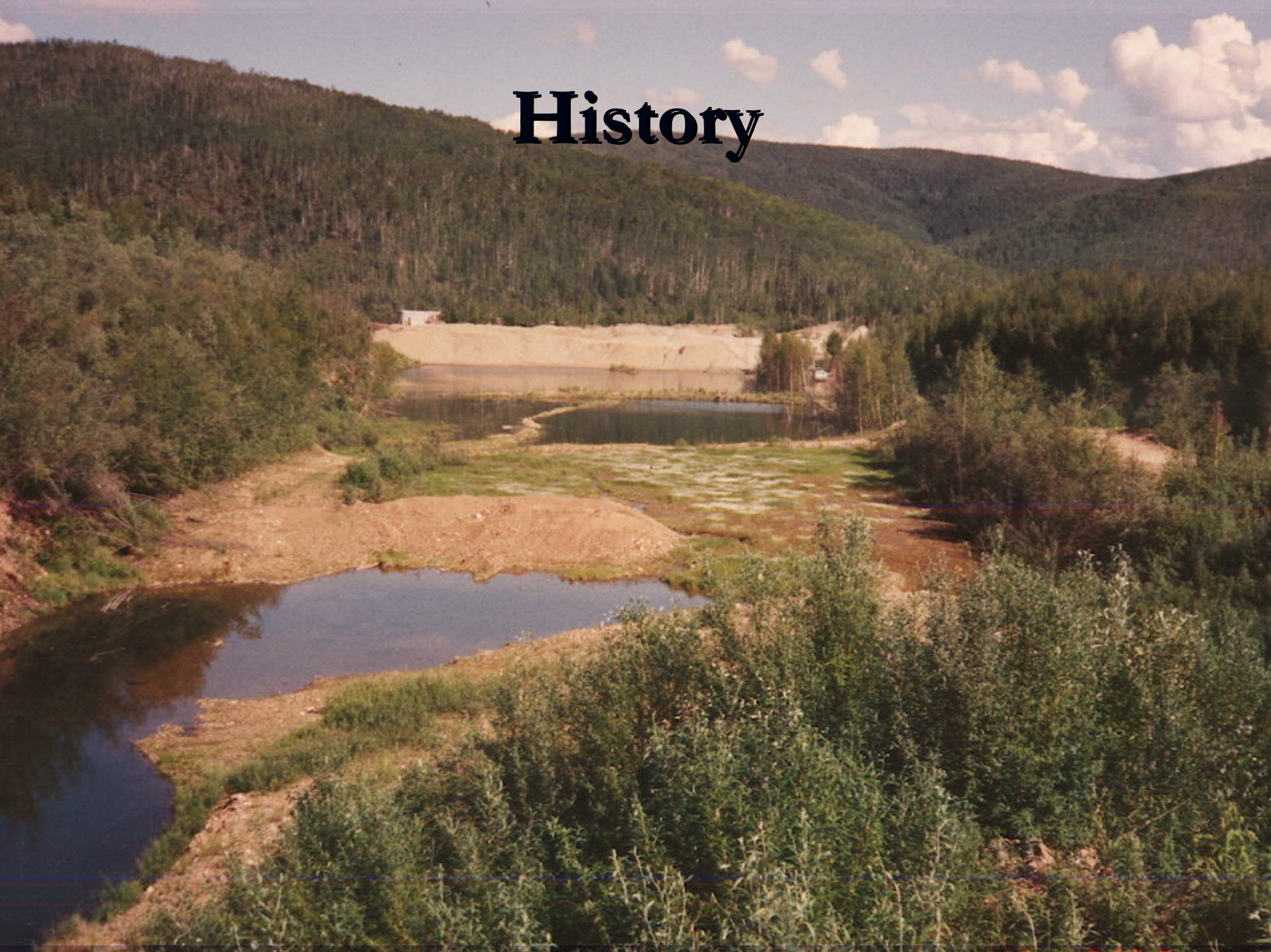
Presentation Outline

- Brief History of the Fort Knox Area
- Fort Knox Mine Water Storage Reservoir (WSR)
- Arctic Grayling
- Burbot
- Water Quality
- Wildlife Use

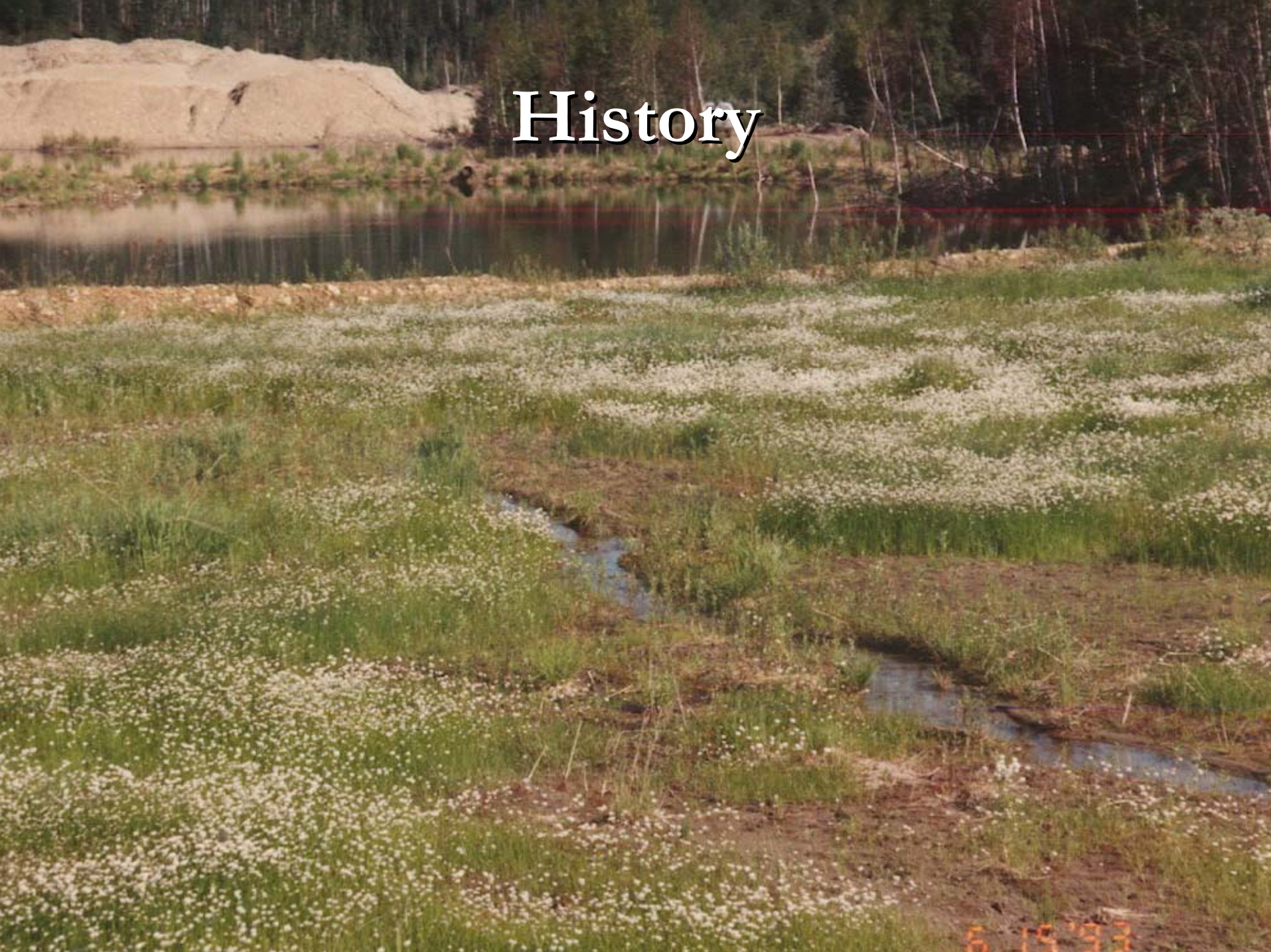
History


Fairbanks
Elliott Highway
True North
Cleary Summit
Fairbanks Creek Rd
Fish Creek Rd
Fort Knox Project
N
(Map not to Scale)
Highway
Fox
Fish Creek Drainage
Chena Hot Springs Rd
Steese
Fairbanks
Parks Highway
Richardson Highway

History



History



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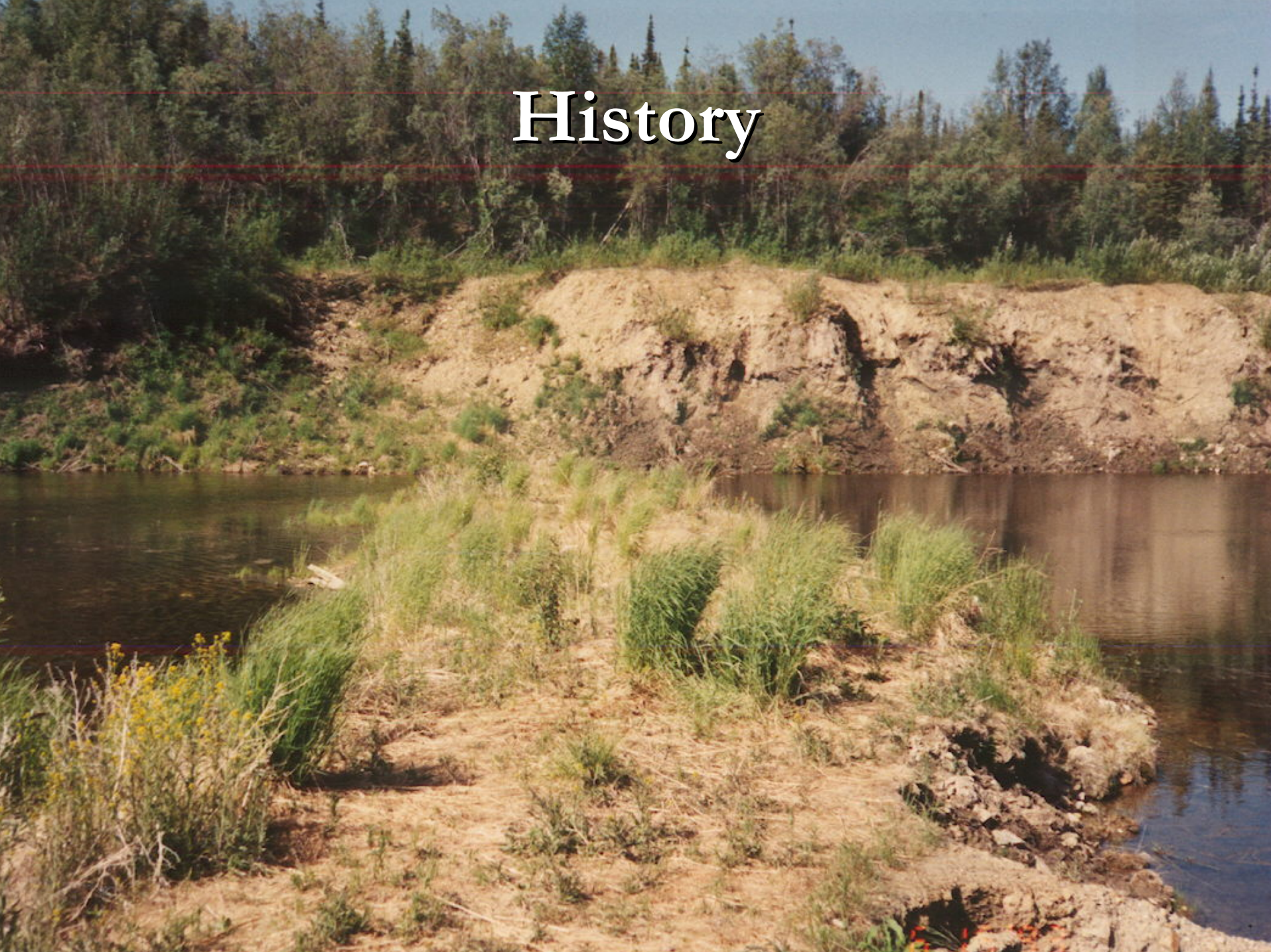


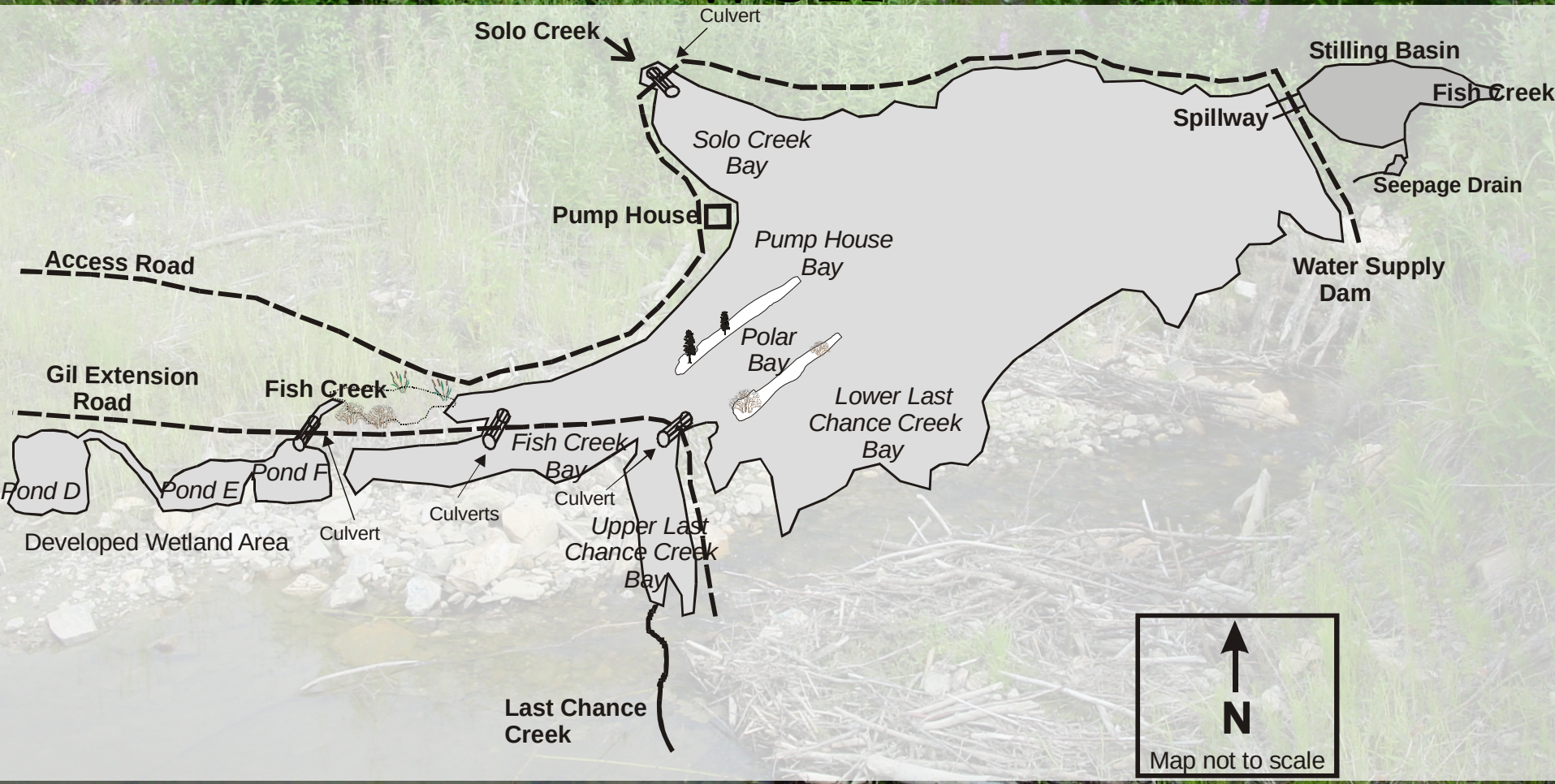
WSR

WSR

WSR

WSR

WSR



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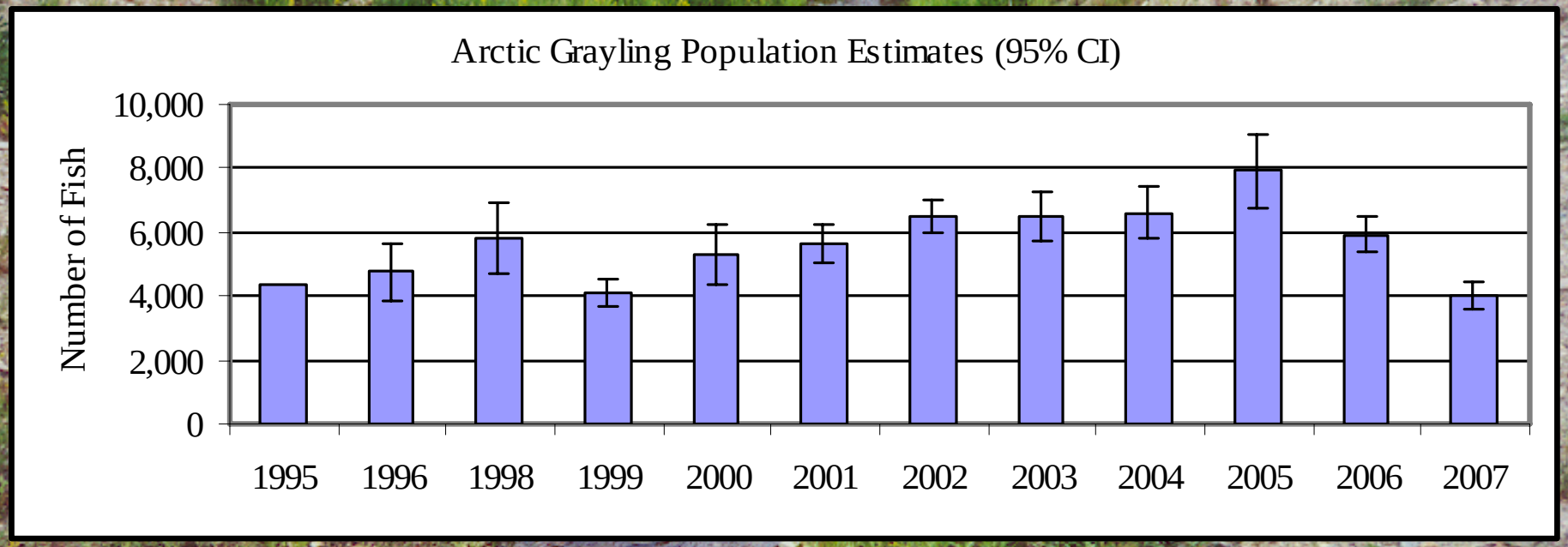
Concurrent Reclamation

Arctic Grayling

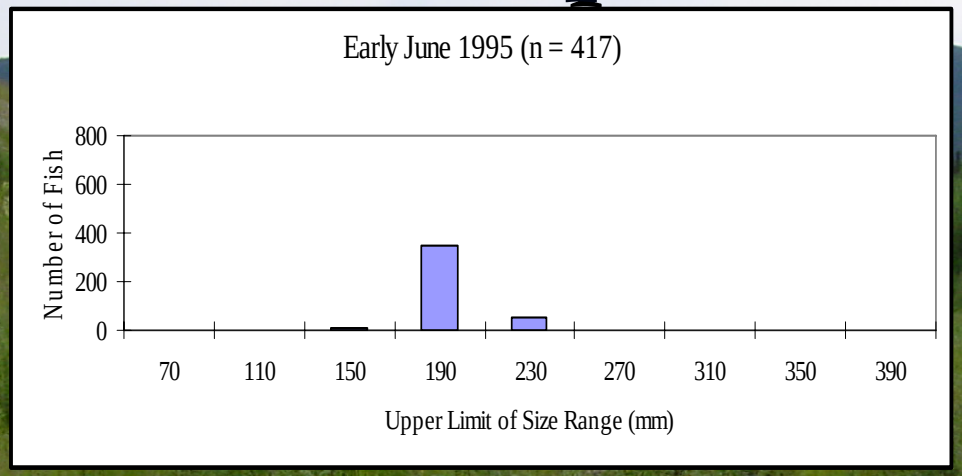
Arctic Grayling

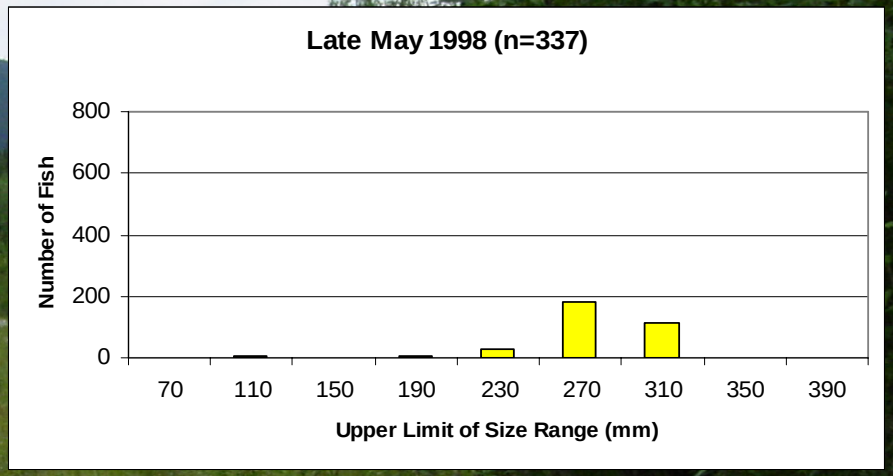
Arctic Grayling

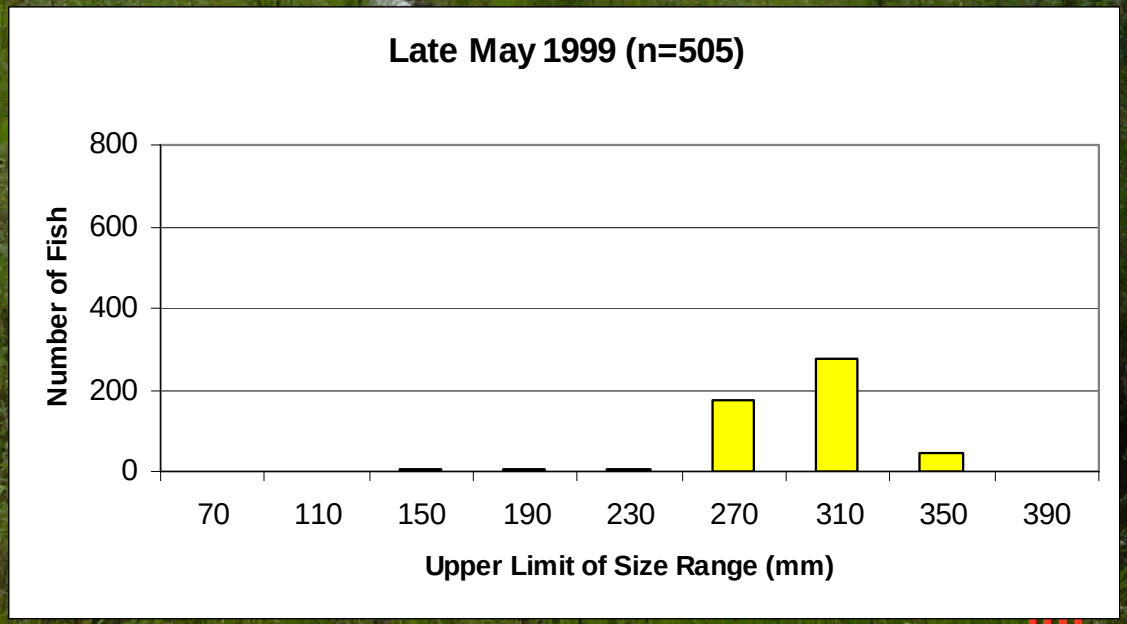
Population Size



Population Structure







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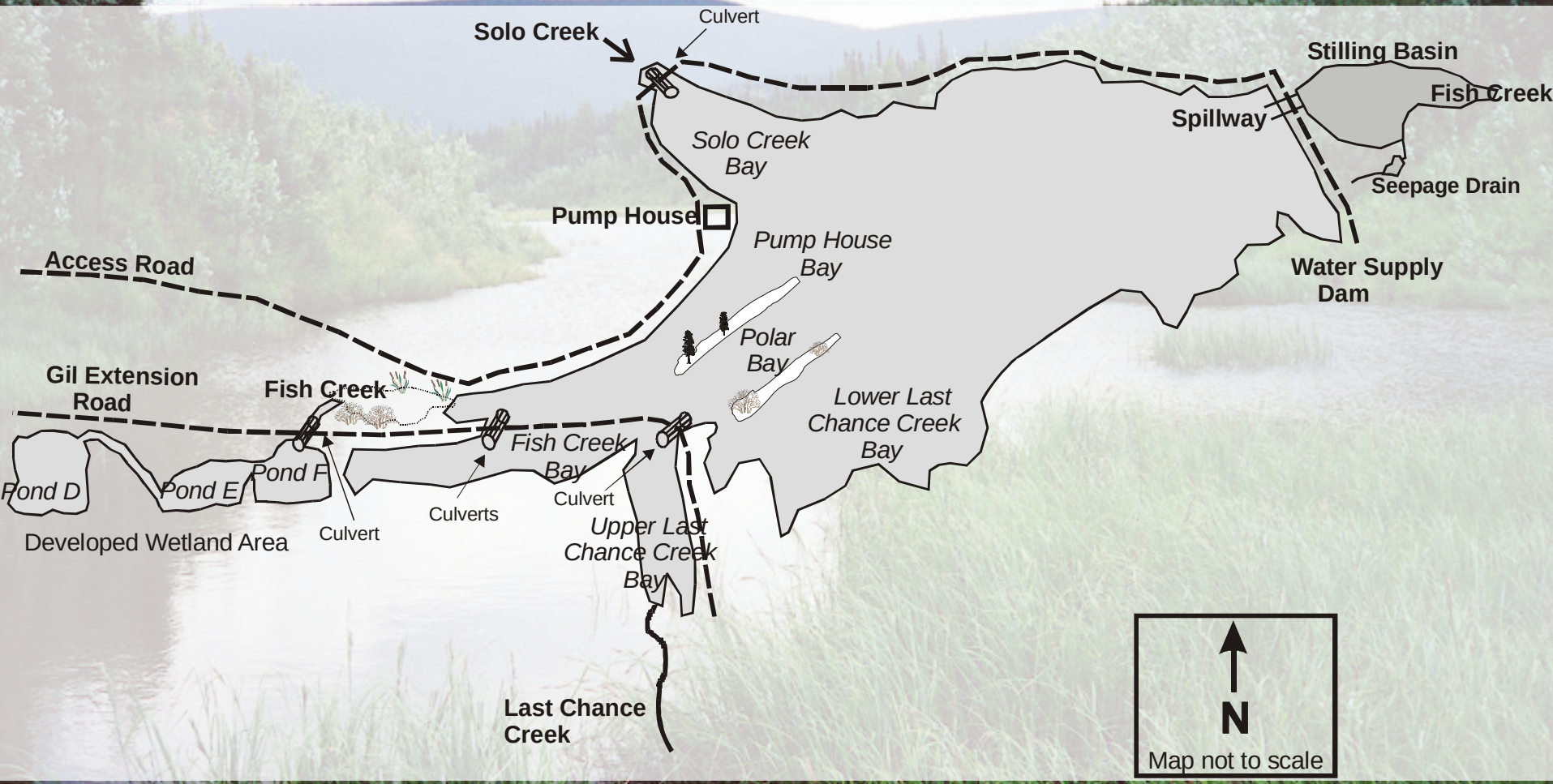
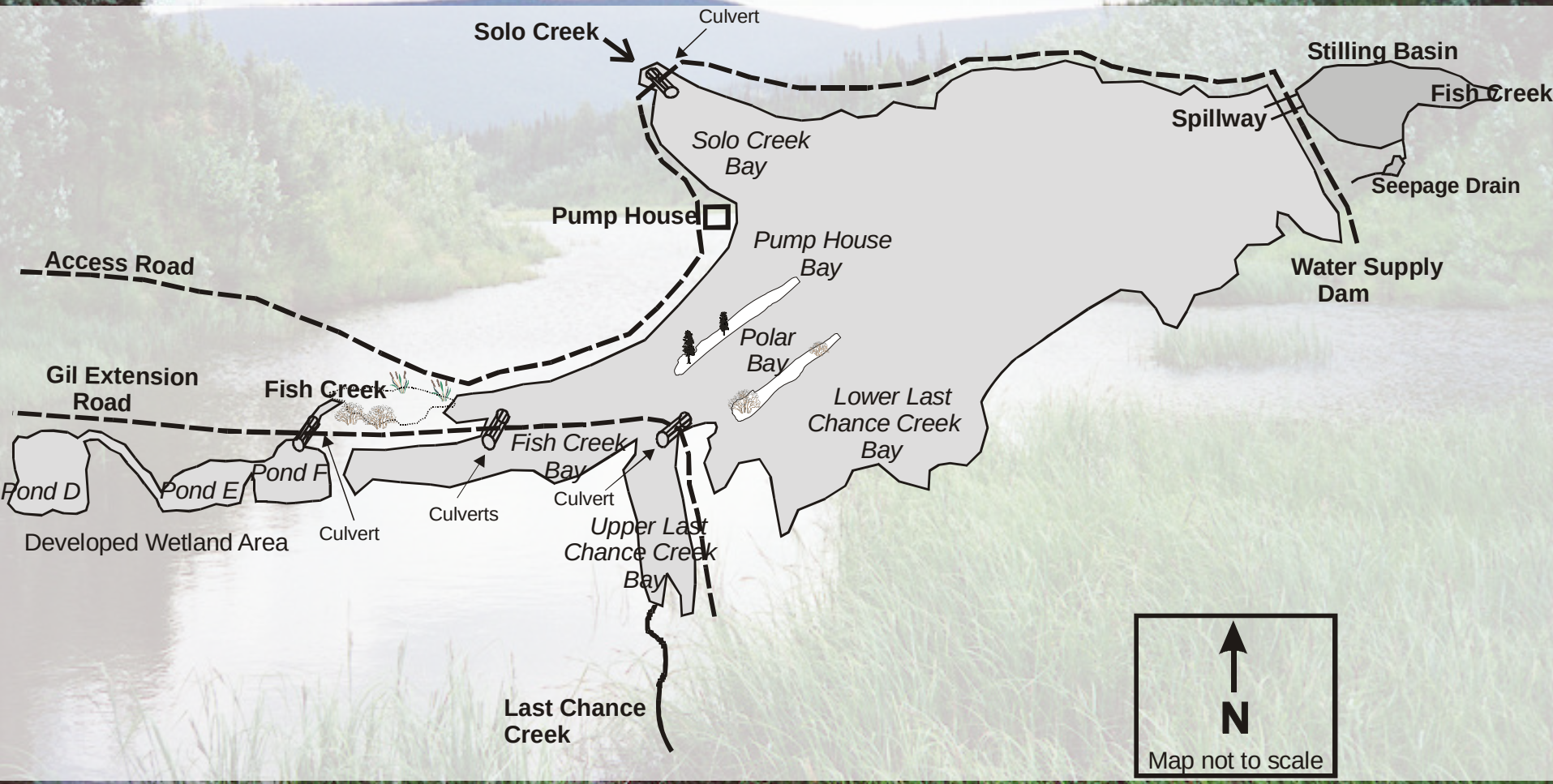
WSR


Solo Creek
Culvert
Stilling Basin
Fish Creek
Spillway
Solo Creek Bay
Seepage Drain
Pump House
Pump House Bay
Access Road
Water Supply Dam
Polar Bay
Gil Extension Road
Fish Creek
Lower Last Chance Creek Bay
Fish Creek Bay
Pond D
Pond E
Pond F
Culvert
Culverts
Culvert
Developed Wetland Area
Upper Last Chance Creek Bay
Last Chance Creek
N
Map not to scale

WSR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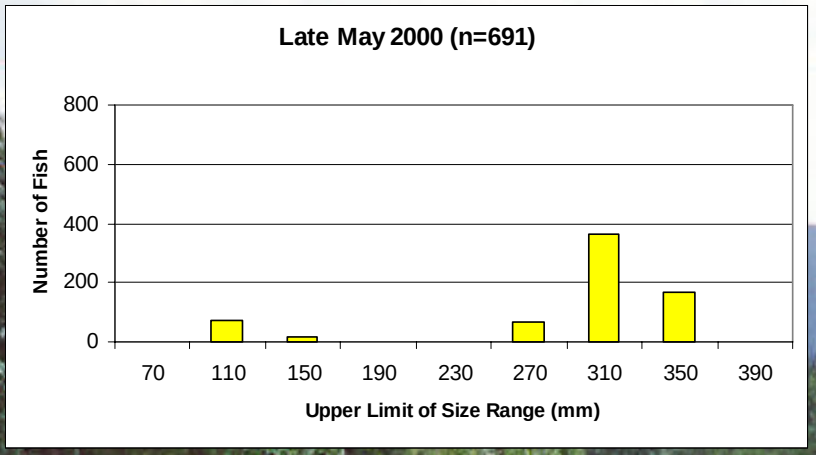
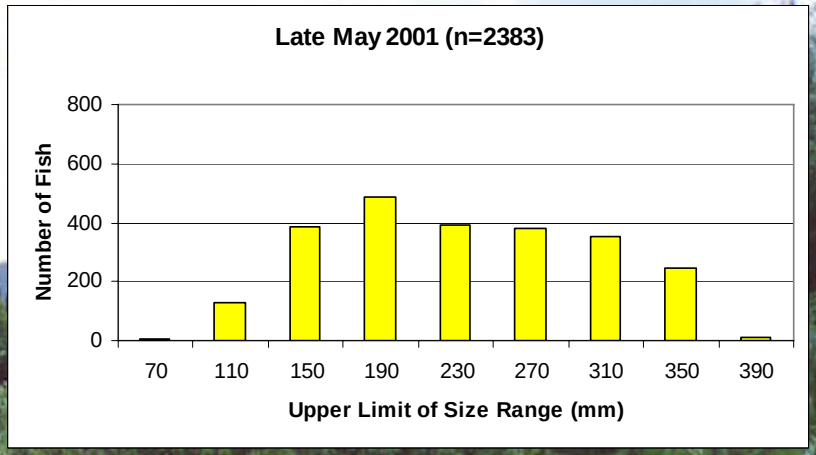
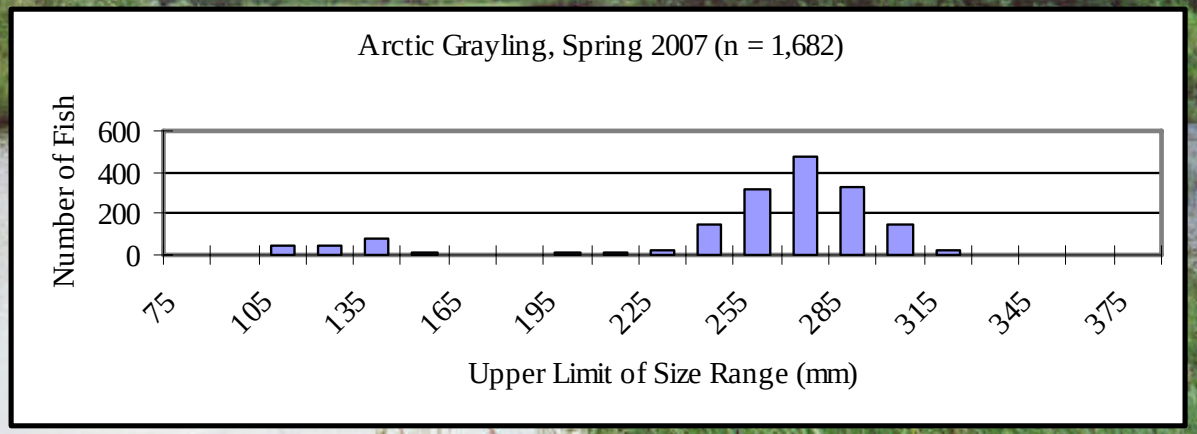
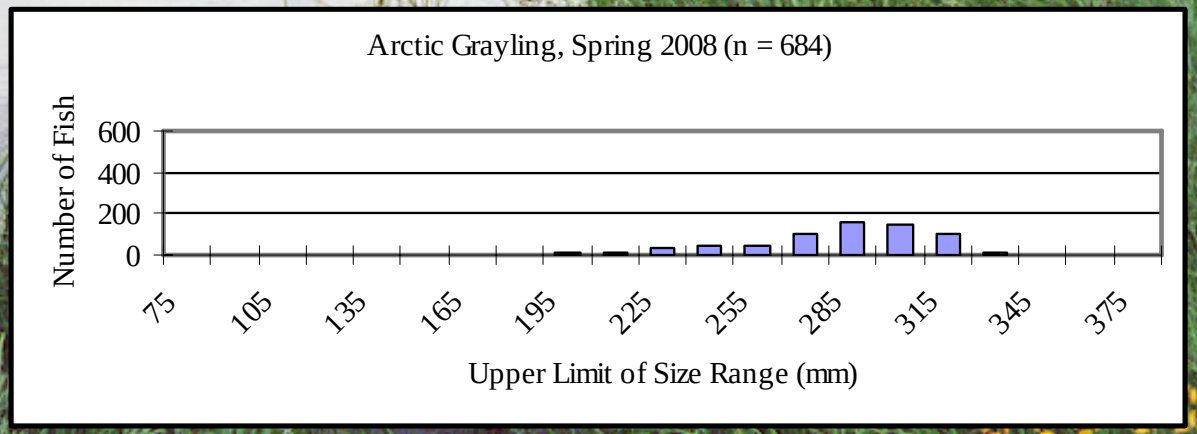
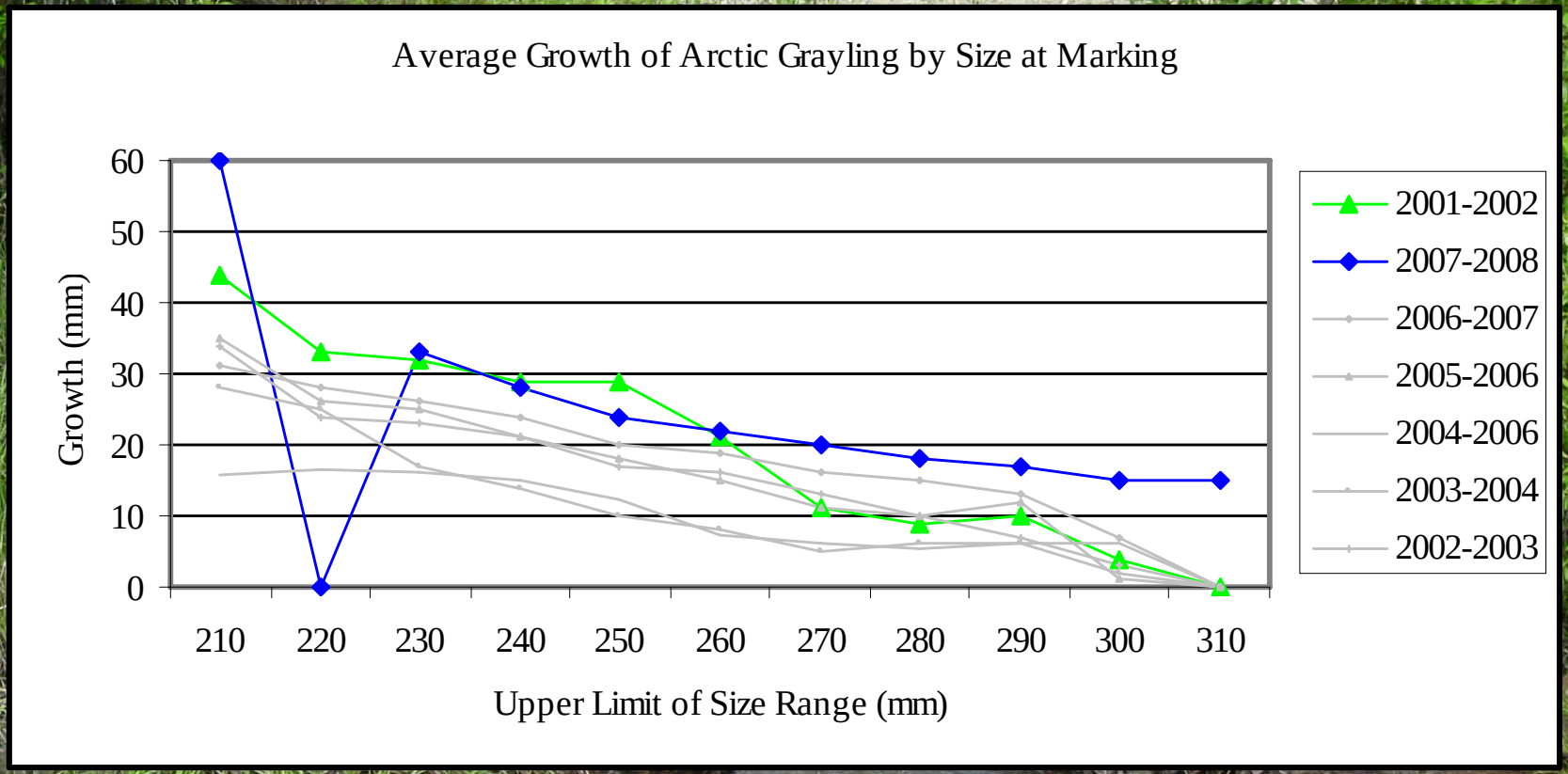

Late May 2000 (n=691)
Number of Fish
800
600
400
200
0
70
110
150
190
230
270
310
350
390
Upper Limit of Size Range (mm)


Late May 2001 (n=2383)
Number of Fish
800
600
400
200
0
70
110
150
190
230
270
310
350
390
Upper Limit of Size Range (mm)


Arctic Grayling, Spring 2007 (n = 1,682)
Number of Fish
600
400
200
0
75
105
135
165
195
225
255
285
315
345
375
Upper Limit of Size Range (mm)


Arctic Grayling, Spring 2008 (n = 684)
Number of Fish
600
400
200
0
75
105
135
165
195
225
255
285
315
345
375
Upper Limit of Size Range (mm)

Growth



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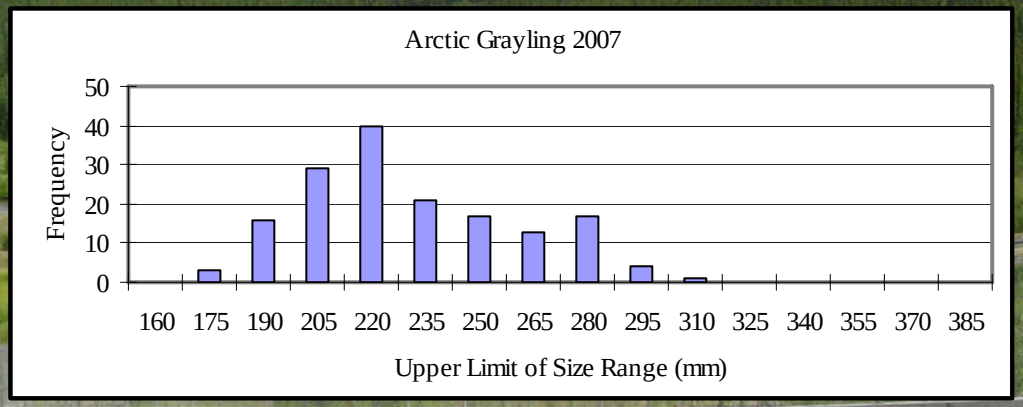
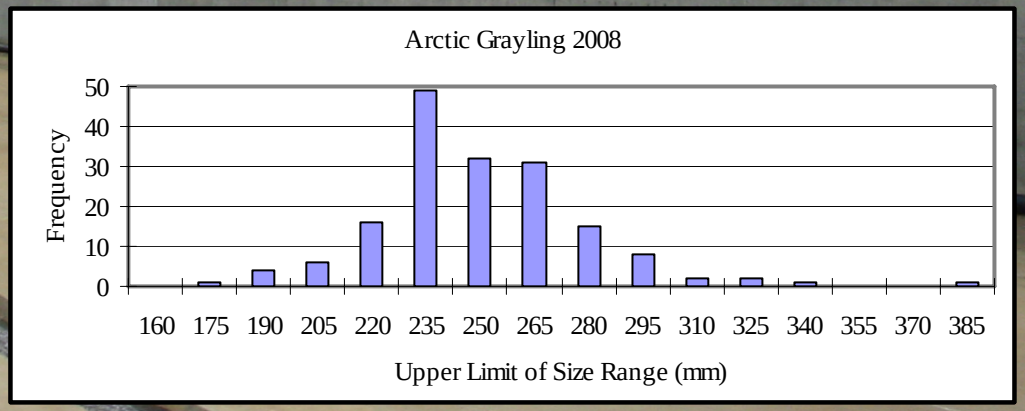
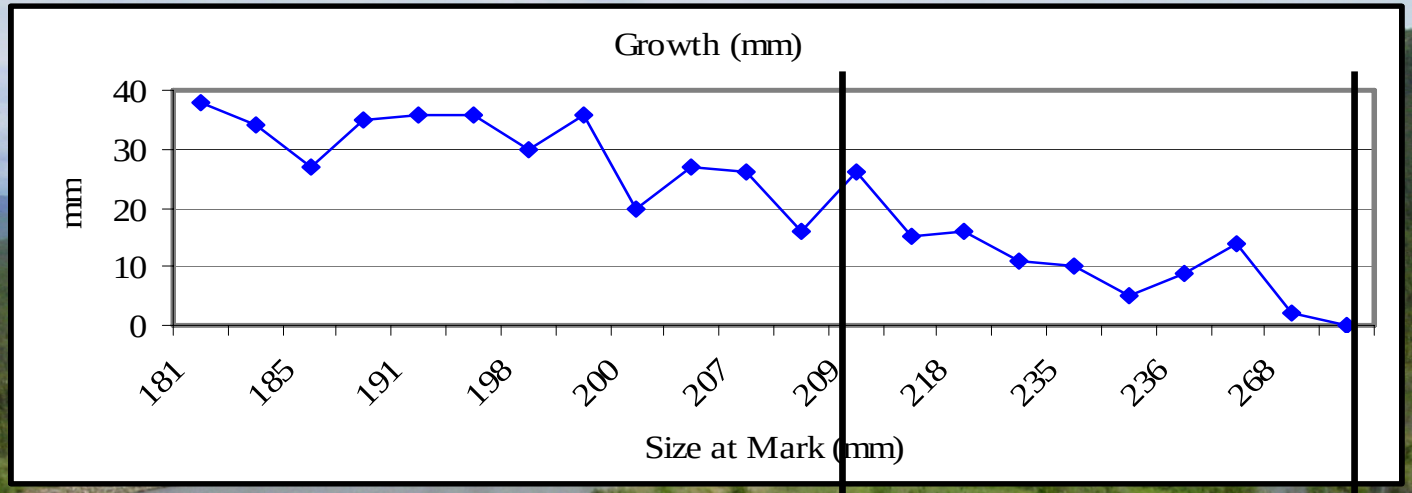
Stilling Basin

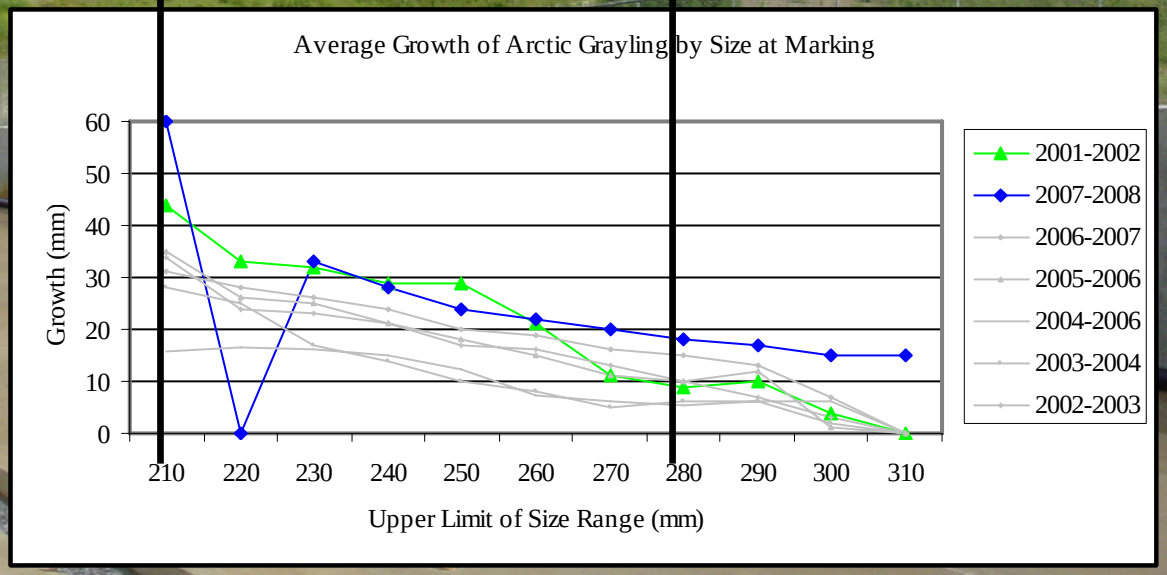
- Spring 2007 Population Estimate
  - 1,139 (95% CI: 748 – 1531) Arctic grayling over 200mm





Stilling Basin

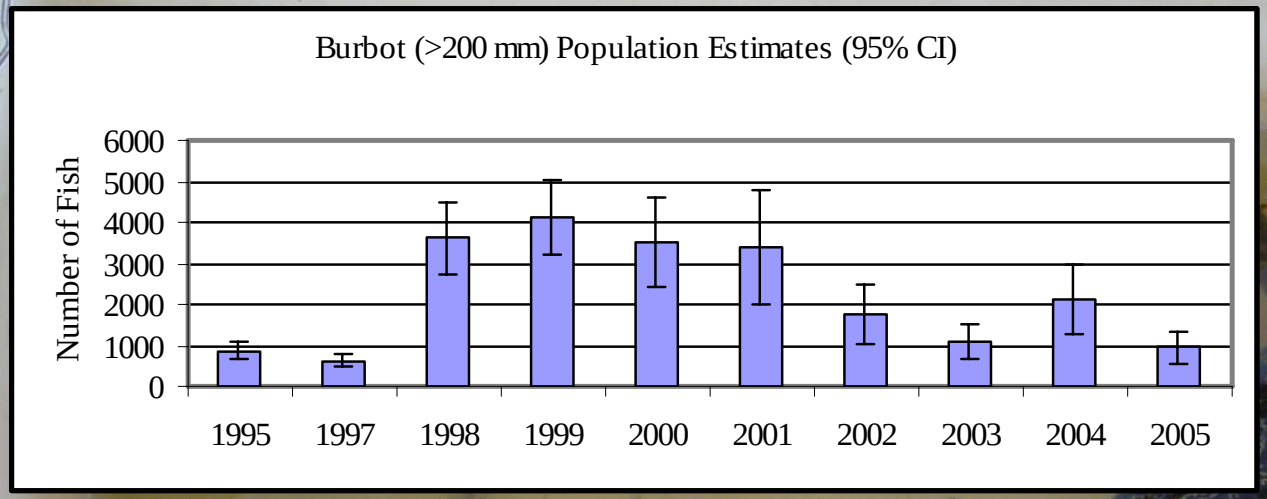


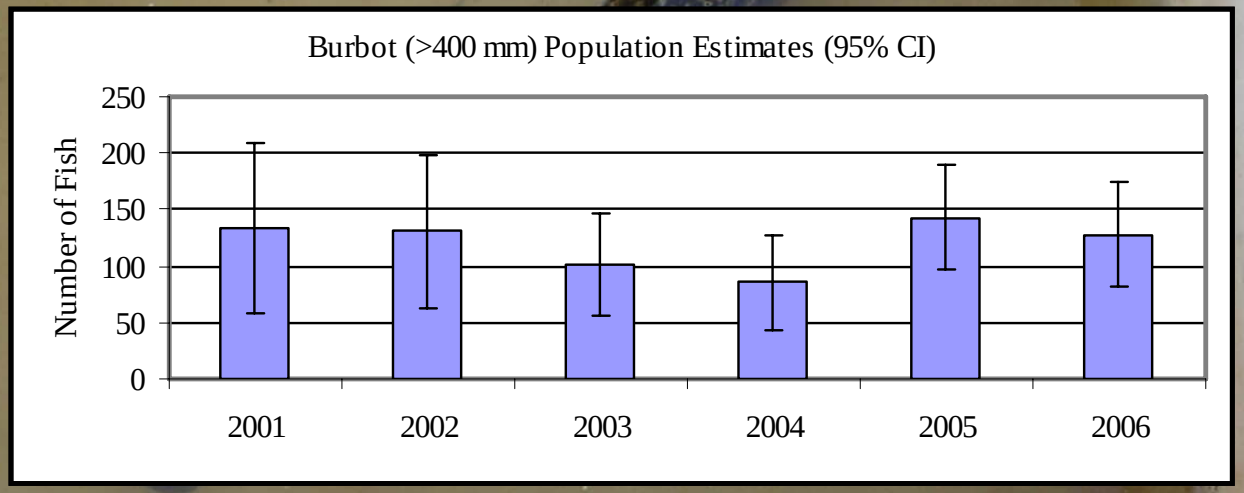


Spawning Success

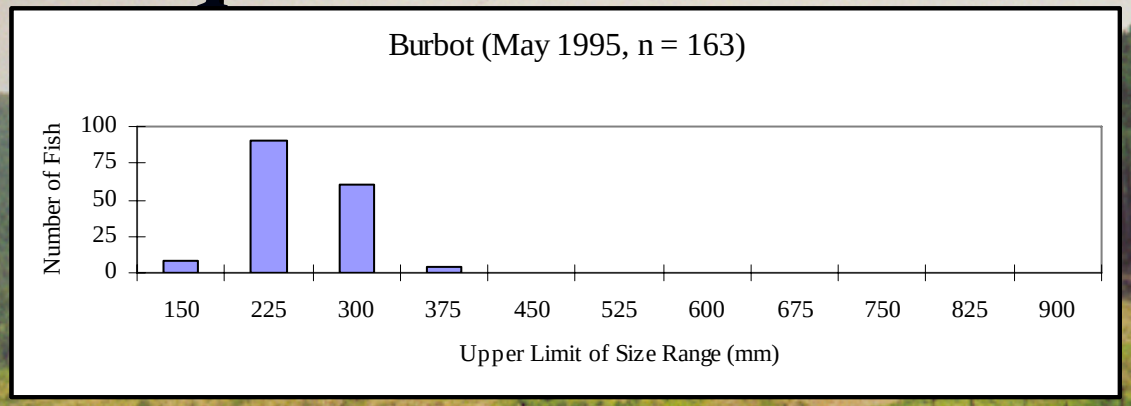
- 2 successful years for Last Chance Creek
  - Aufeis abatement project fall 2008
  - Will continue monitoring
- Continued Success in wetlands?
  - Beavers remain very active
  - Dams removed in Spring 2008
    - Spawning occurred throughout wetlands
  - Dams rebuilt by Fall
    - Return to reservoir impeded
    - High mortality of fry likely

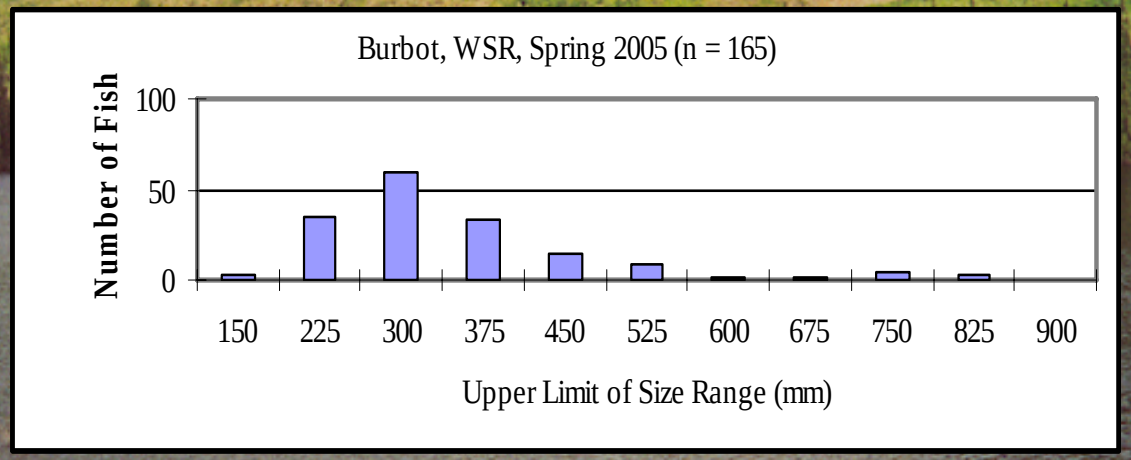
Burbot

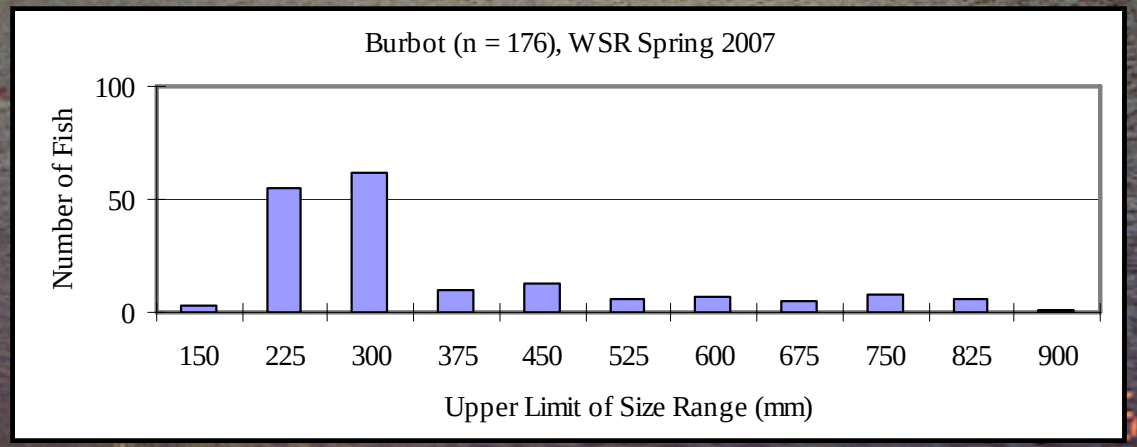

Burbot (>200 mm) Population Estimates (95% CI)
Number of Fish
6000
5000
4000
3000
2000
1000
0
1995
1997
1998
1999
2000
2001
2002
2003
2004
2005


Burbot (>400 mm) Population Estimates (95% CI)
Number of Fish
250
200
150
100
50
0
2001
2002
2003
2004
2005
2006

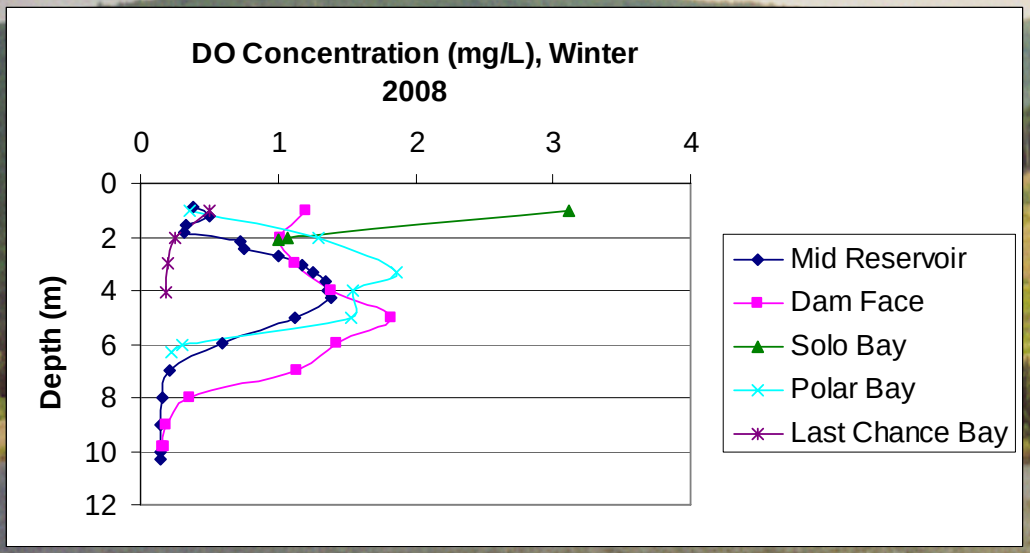
Population Structure

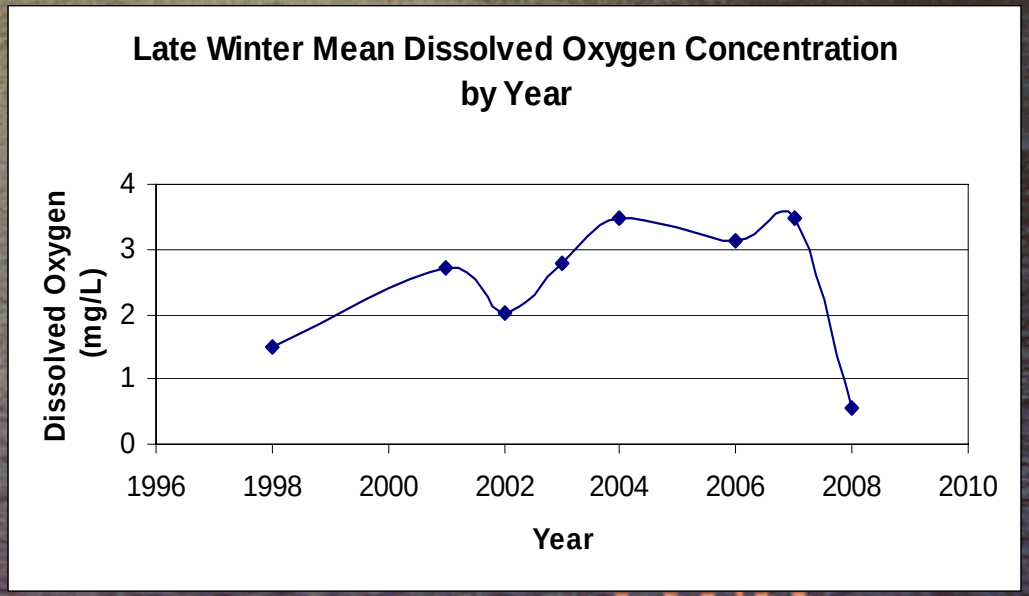




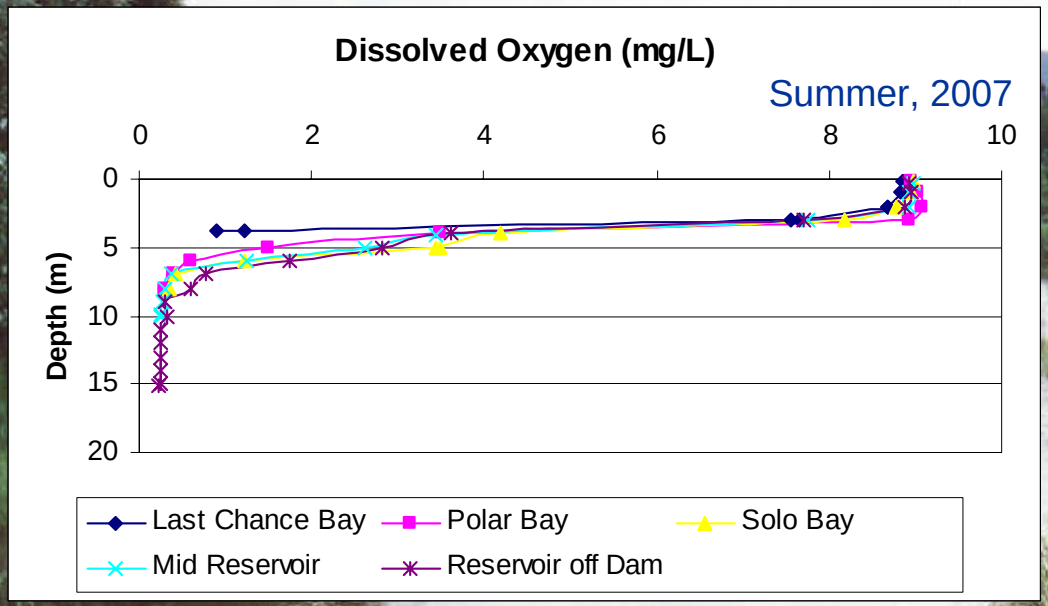


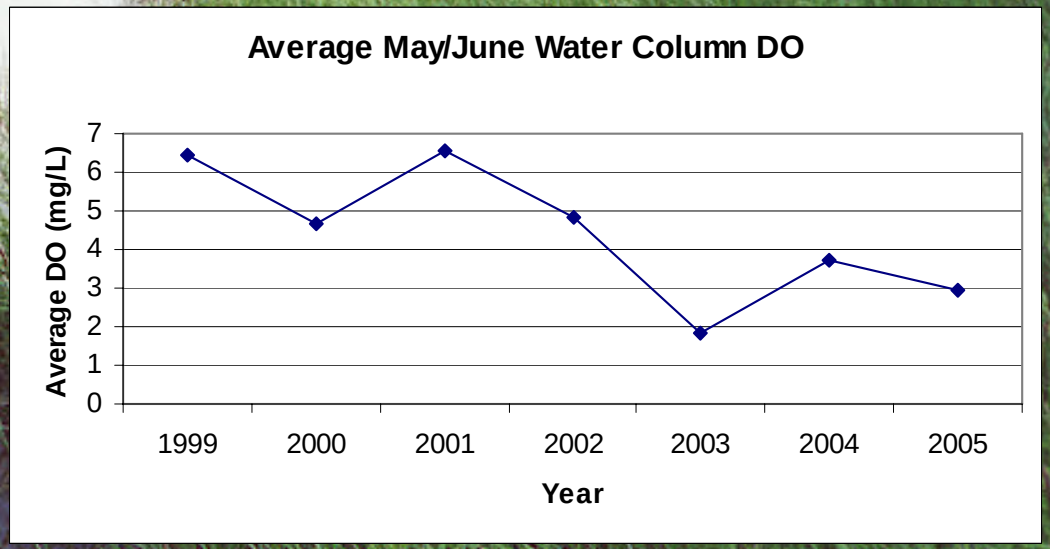
Water Quality





Water Quality





Water Quality

Observations/Future Considerations

- Increase in aquatic vegetation
- Increase in muskrat numbers
- **Beaver management**
  - **Dam maintenance – all year**
    - **Maintain Arctic grayling population**
- **Thermal erosion along south bank of WSR**
  - **Monitoring program?**
  - Large organic contribution

Wildlife Use

APR 22 2005

MAY 4 2005

Questions?