Movement, Mortality and Habitat Use Of Coeur d'Alene River Cutthroat Trout

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Ed Lider
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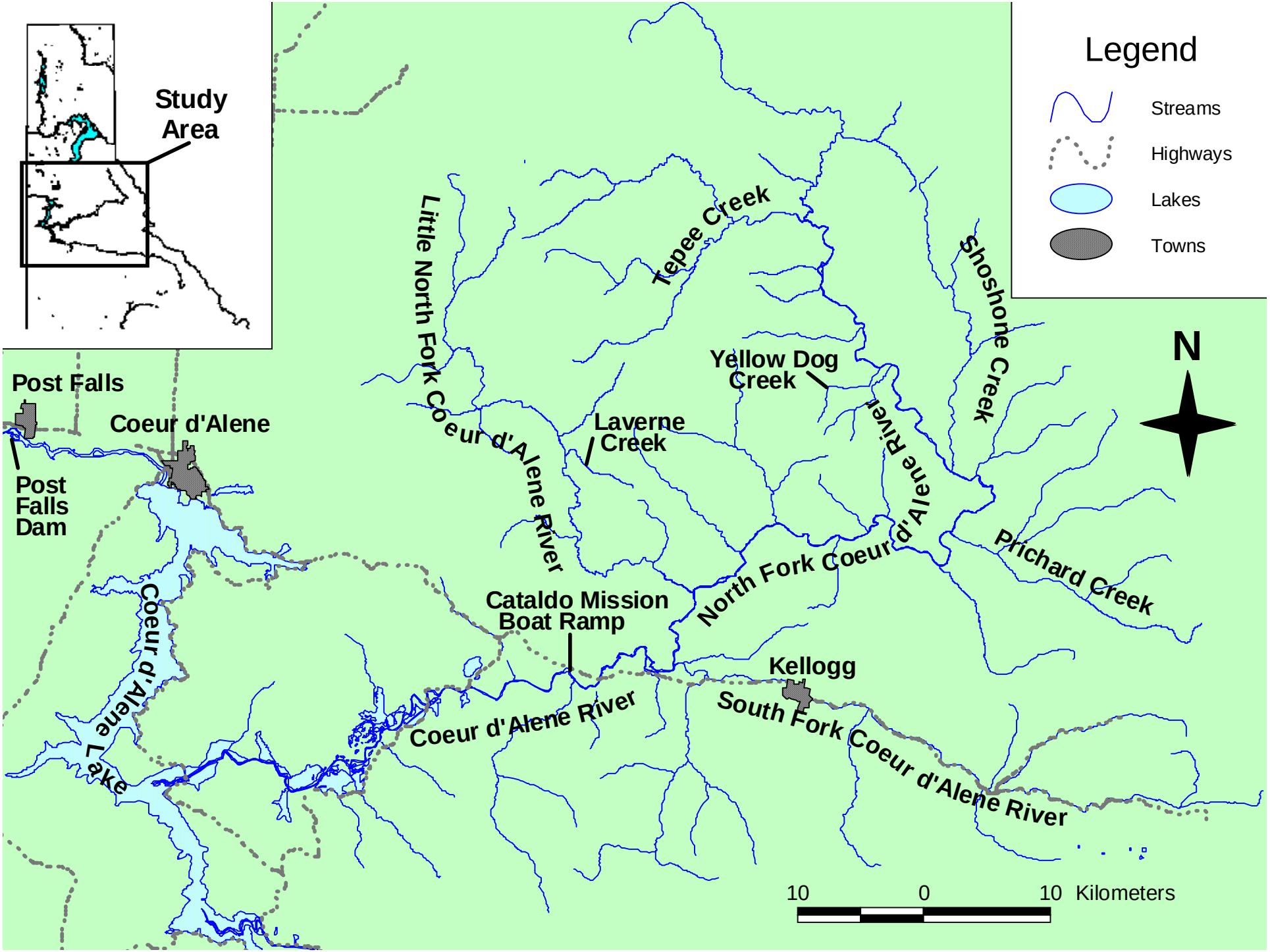
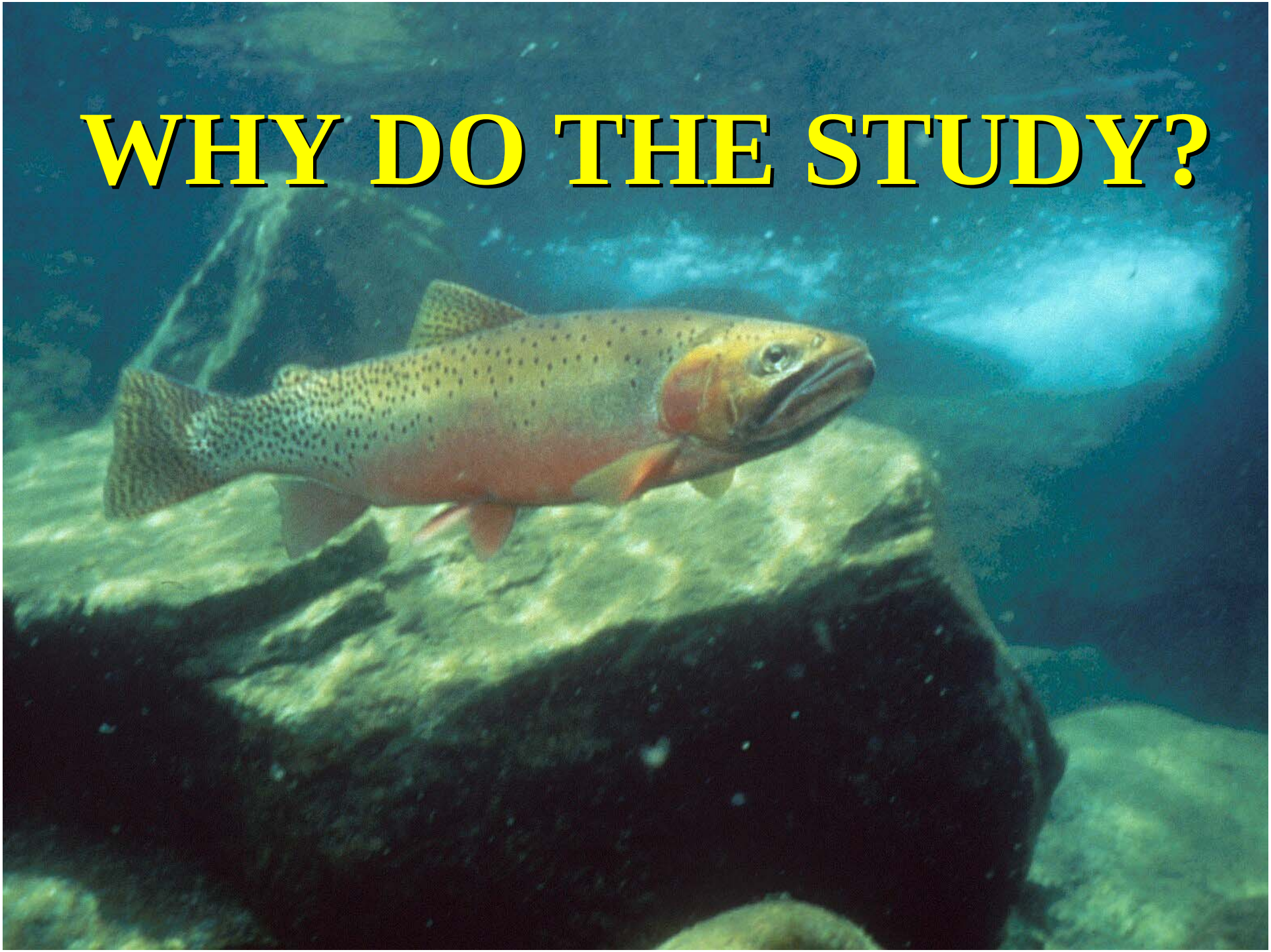
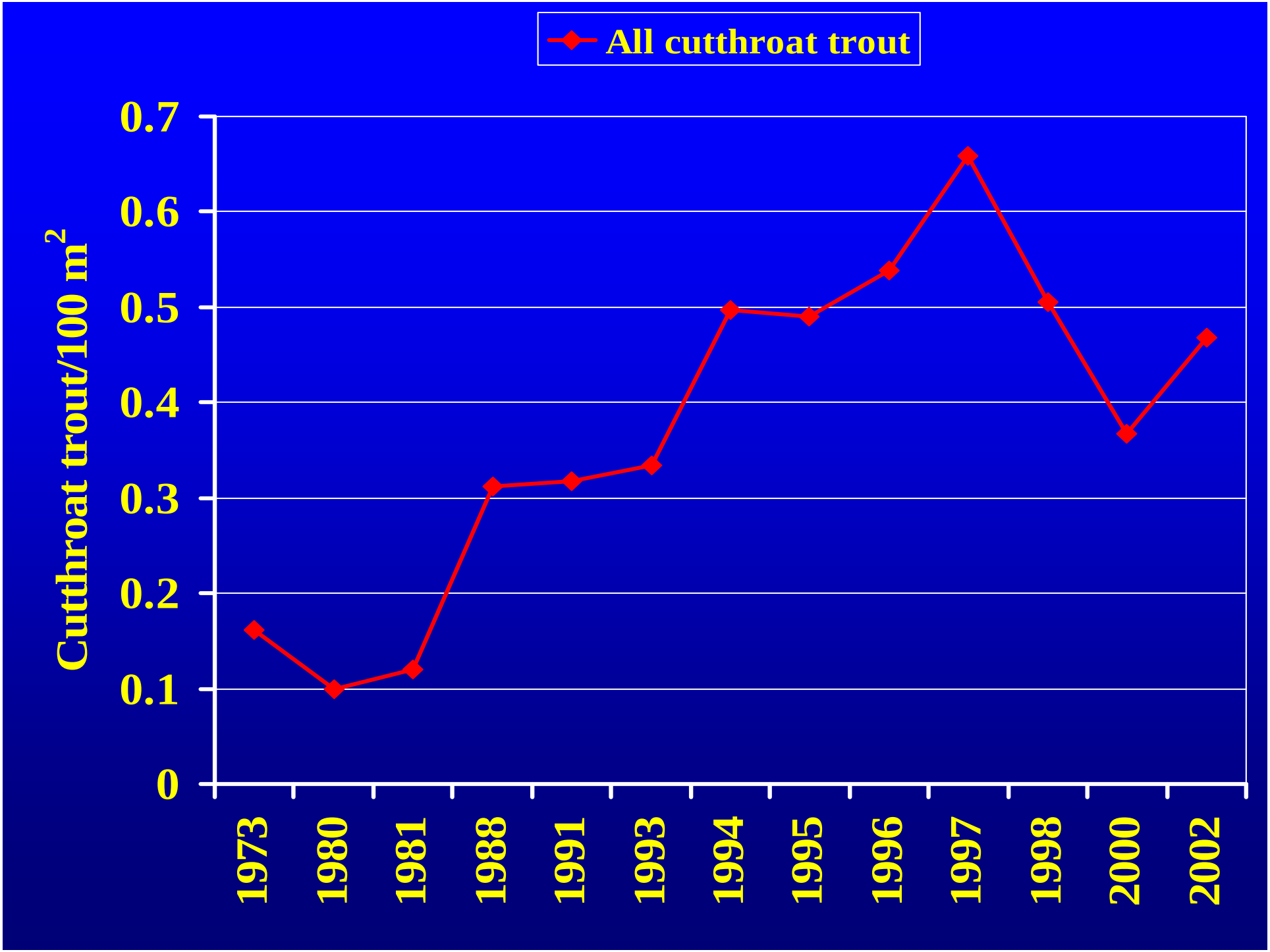
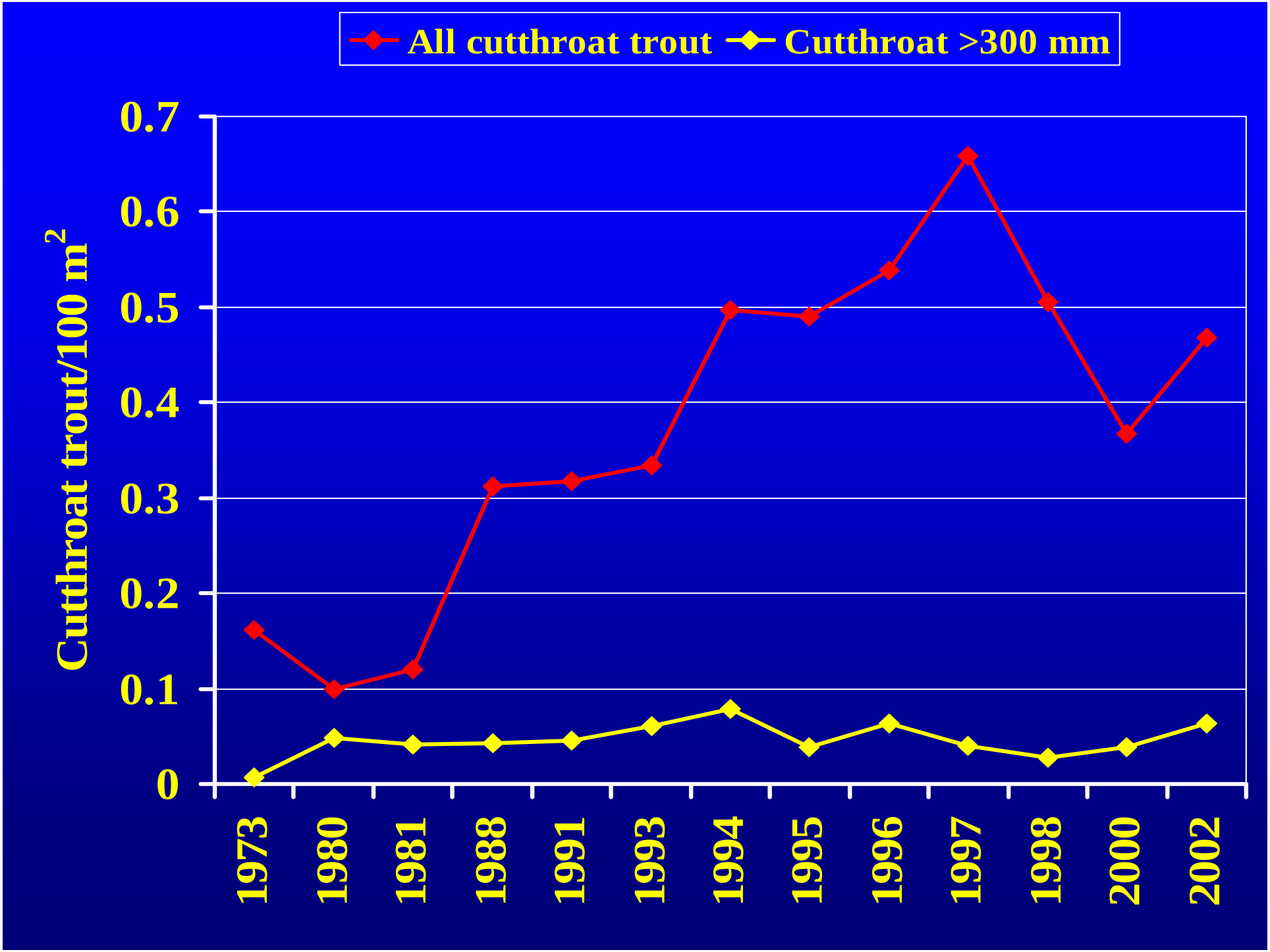

Study Area
Legend
Streams
Highways
Lakes
Towns
N
Post Falls
Coeur d'Alene
Post Falls Dam
Little North Fork Coeur d'Alene River
Tepee Creek
Laverne Creek
Yellow Dog Creek
Shoshone Creek
North Fork Coeur d'Alene River
Prichard Creek
Cataldo Mission Boat Ramp
Coeur d'Alene Lake
Coeur d'Alene River
Kellogg
South Fork Coeur d'Alene River
10 0 10 Kilometers

WHY DO THE STUDY?




All cutthroat trout
Cutthroat trout/100 m2
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1973
1980
1981
1988
1991
1993
1994
1995
1996
1997
1998
2000
2002


All cutthroat trout
Cutthroat >300 mm
Cutthroat trout/100 m2
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1973
1980
1981
1988
1991
1993
1994
1995
1996
1997
1998
2000
2002

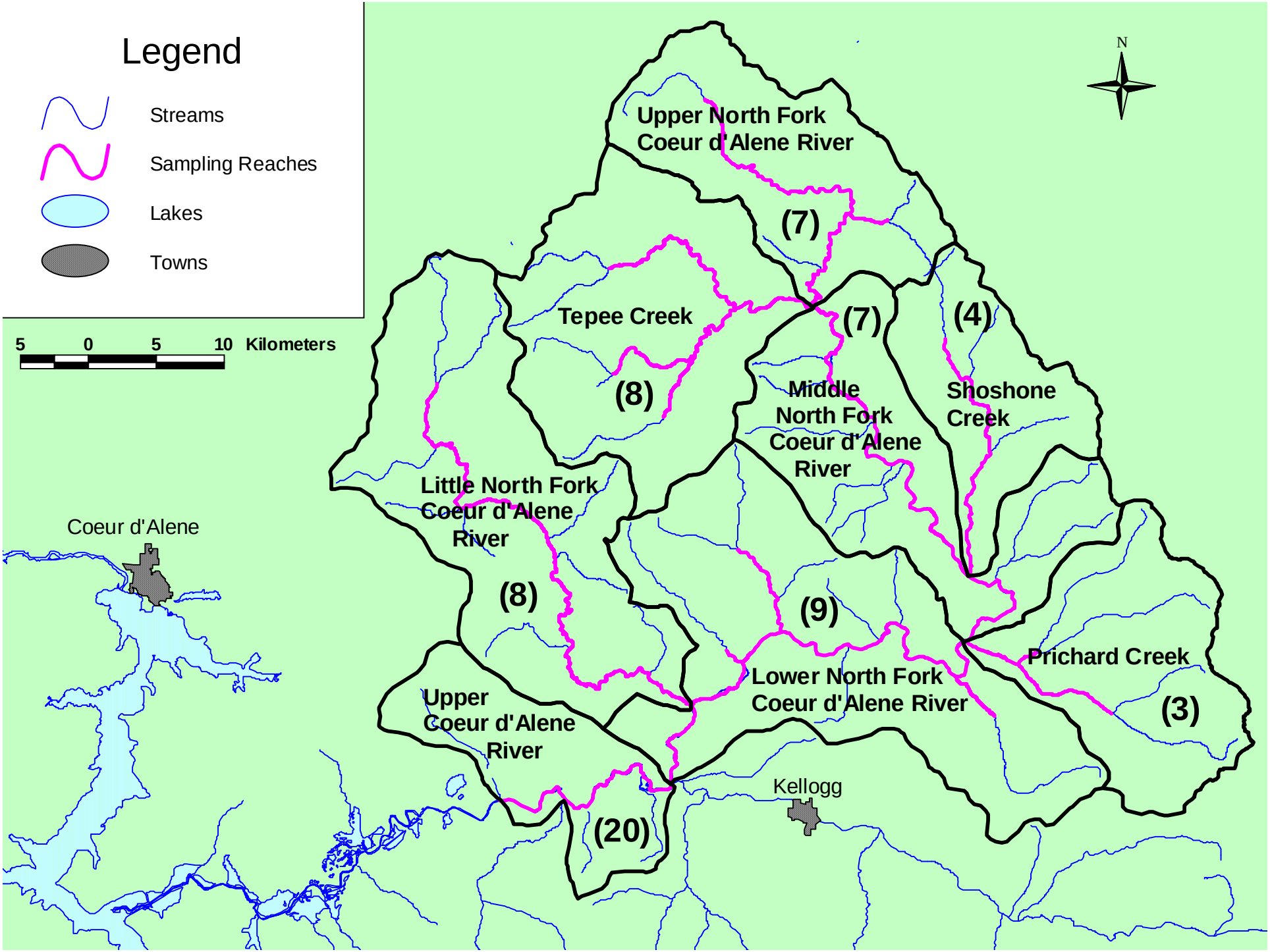
9. 14. 2000

Objectives

1. Assess movement and mortality of adult cutthroat trout in the Coeur d'Alene River Basin.
2. Evaluate how water temperature influences movement and habitat use of cutthroat trout in the Coeur d'Alene River system.
3. Determine habitat use of adult cutthroat trout and assess the amount of available habitat within the Coeur d'Alene River Basin.
4. Evaluate how operations from Post Falls Dam influence habitat availability of cutthroat trout in the Coeur d'Alene River.

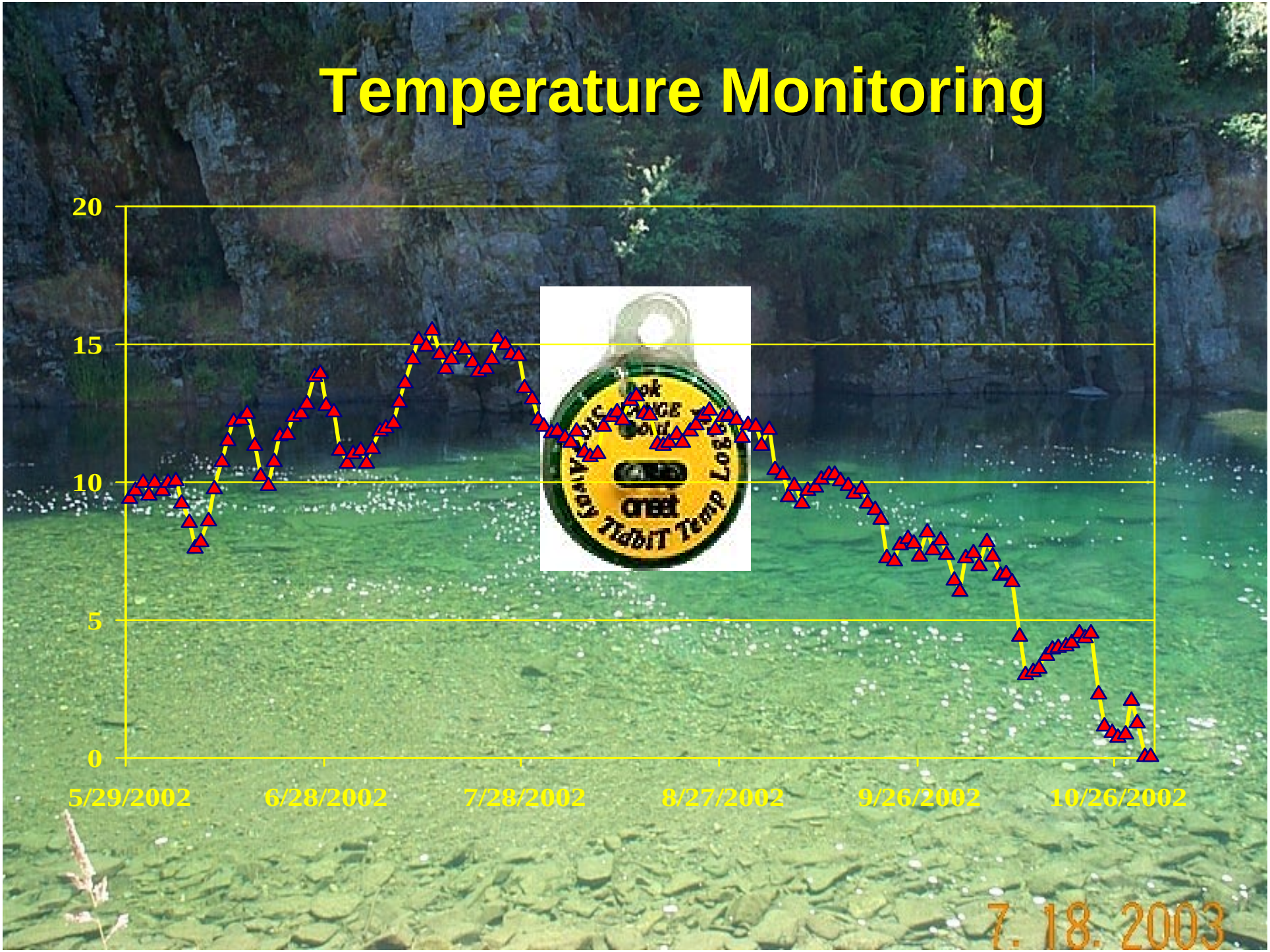
Methods

Capturing and radio tagging cutthroat trout

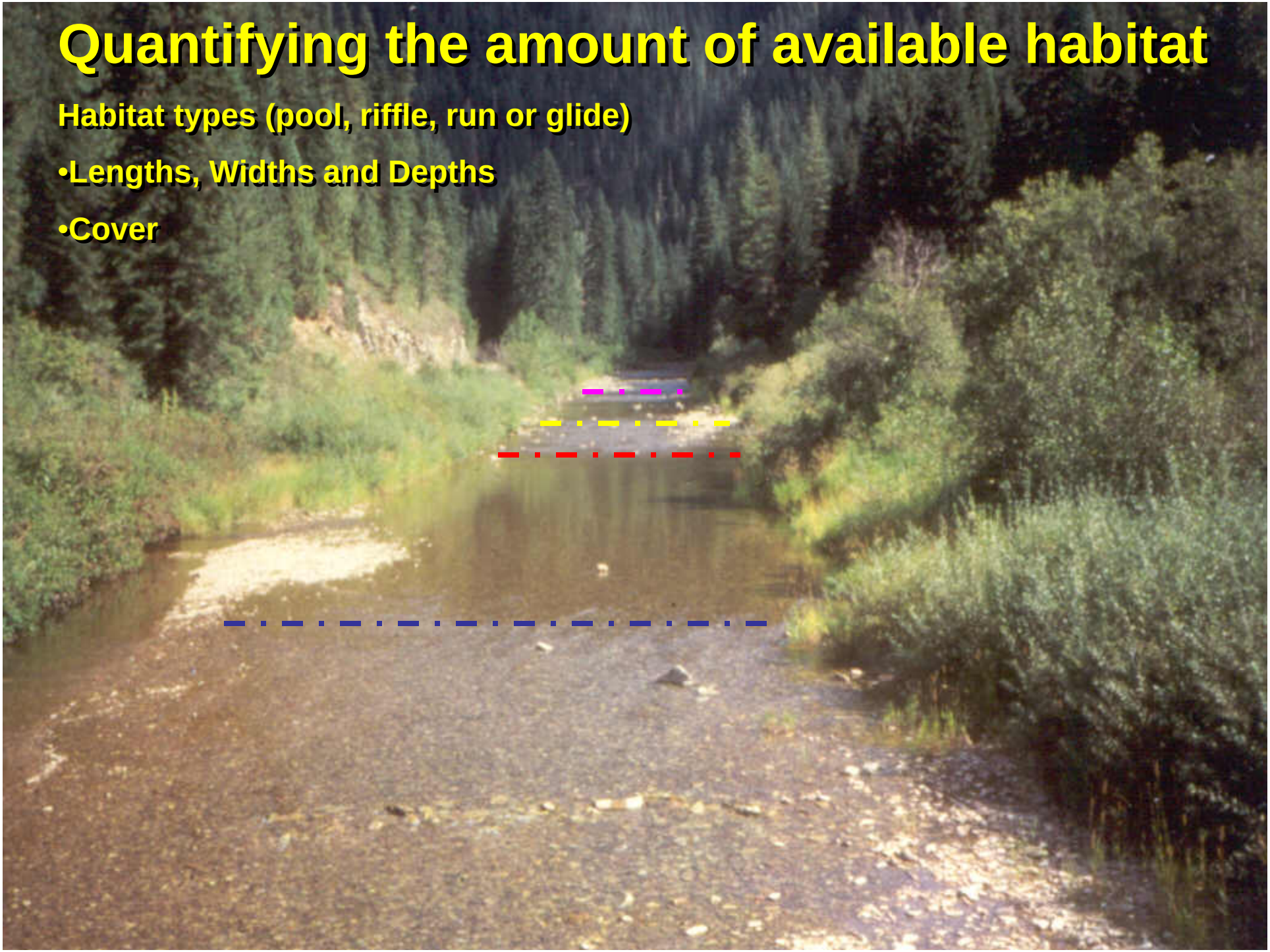

Legend
Streams
Sampling Reaches
Lakes
Towns
5 0 5 10 Kilometers
N
Upper North Fork Coeur d'Alene River
(7)
Tepee Creek
(8)
(7)
Middle North Fork Coeur d'Alene River
(4)
Shoshone Creek
Little North Fork Coeur d'Alene River
(8)
(9)
Prichard Creek
(3)
Lower North Fork Coeur d'Alene River
Upper Coeur d'Alene River
(20)
Coeur d'Alene
Kellogg

Tracking the radio tagged cutthroat trout

Temperature Monitoring

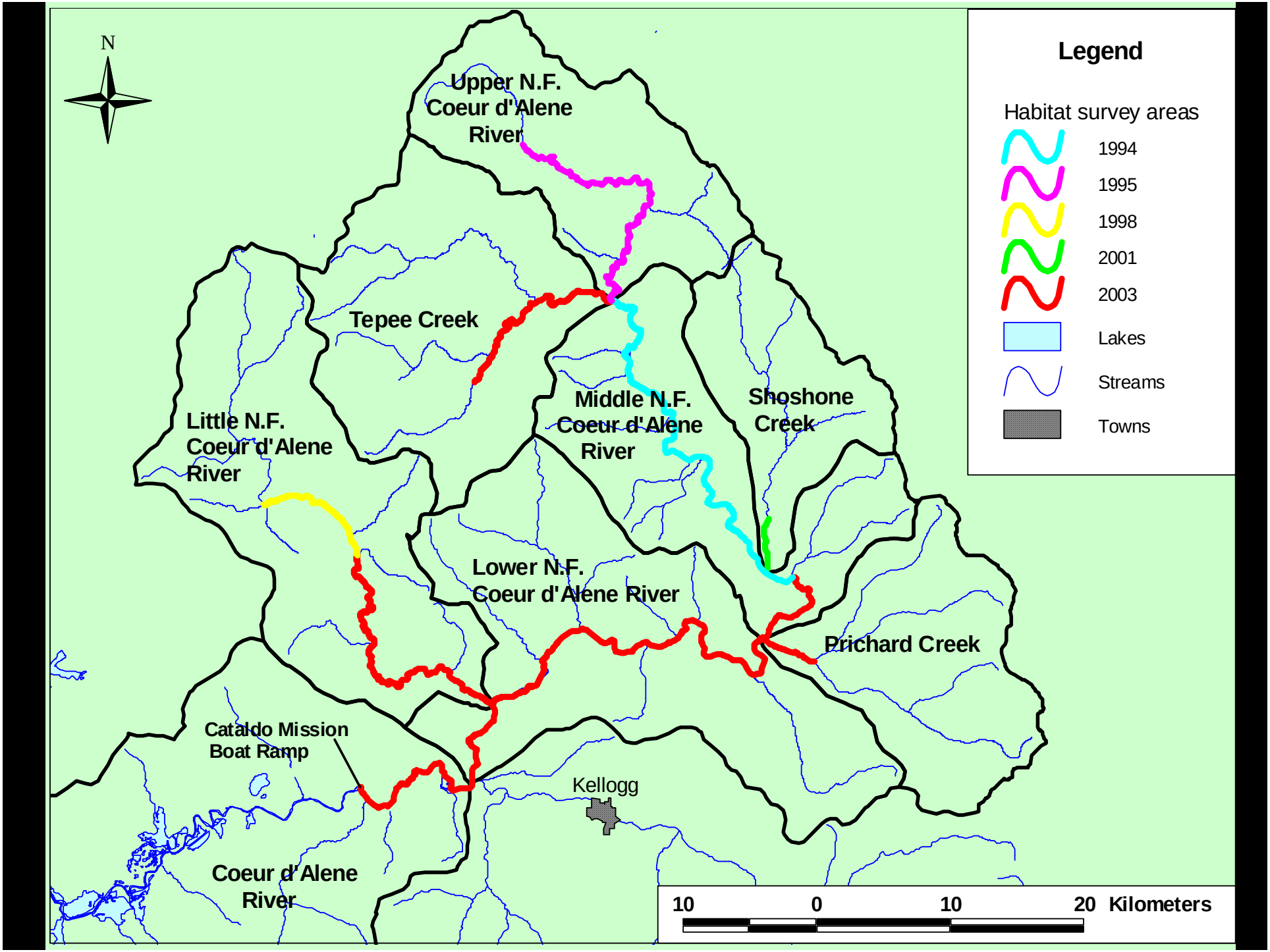


Quantifying the amount of available habitat

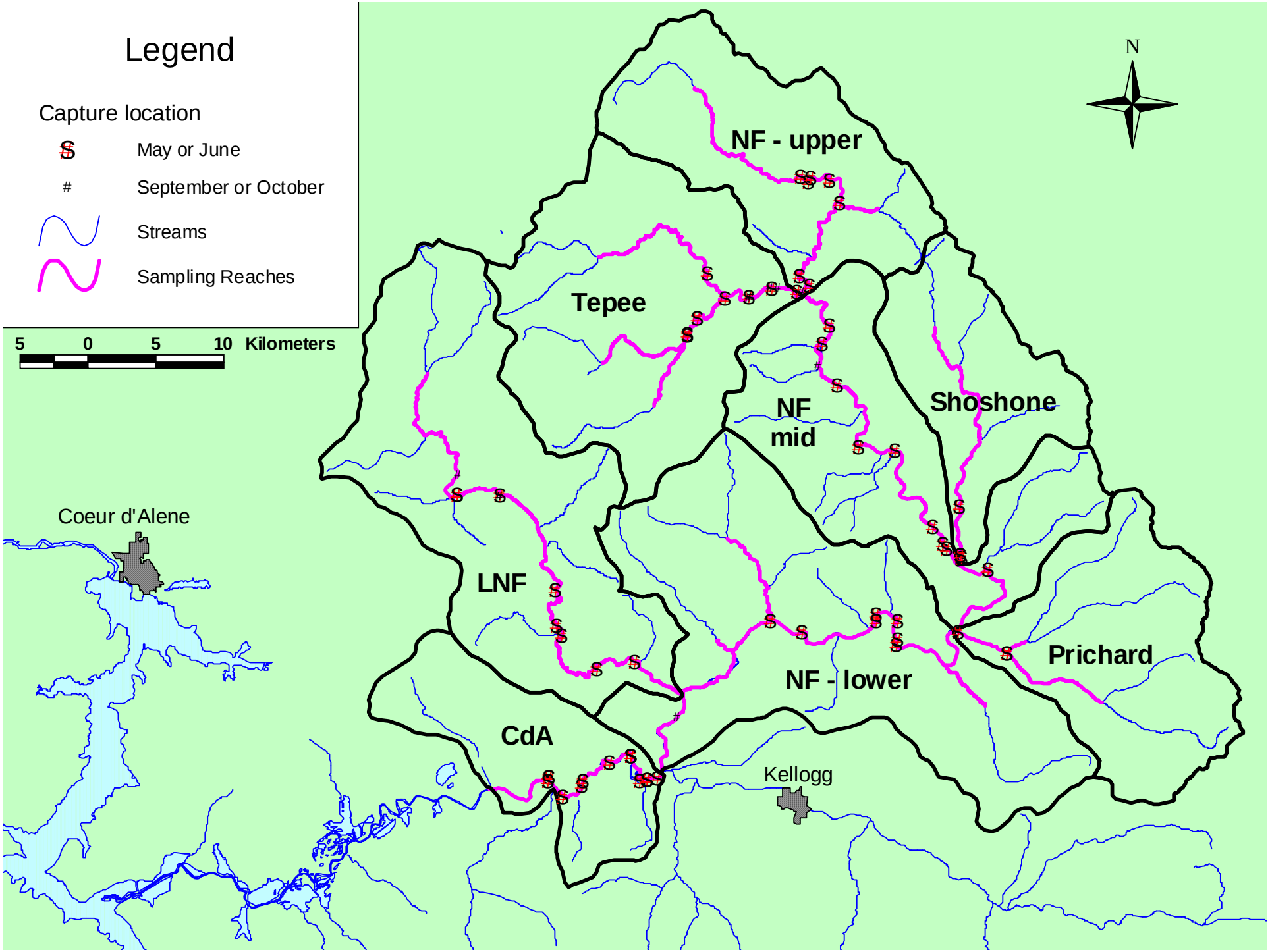


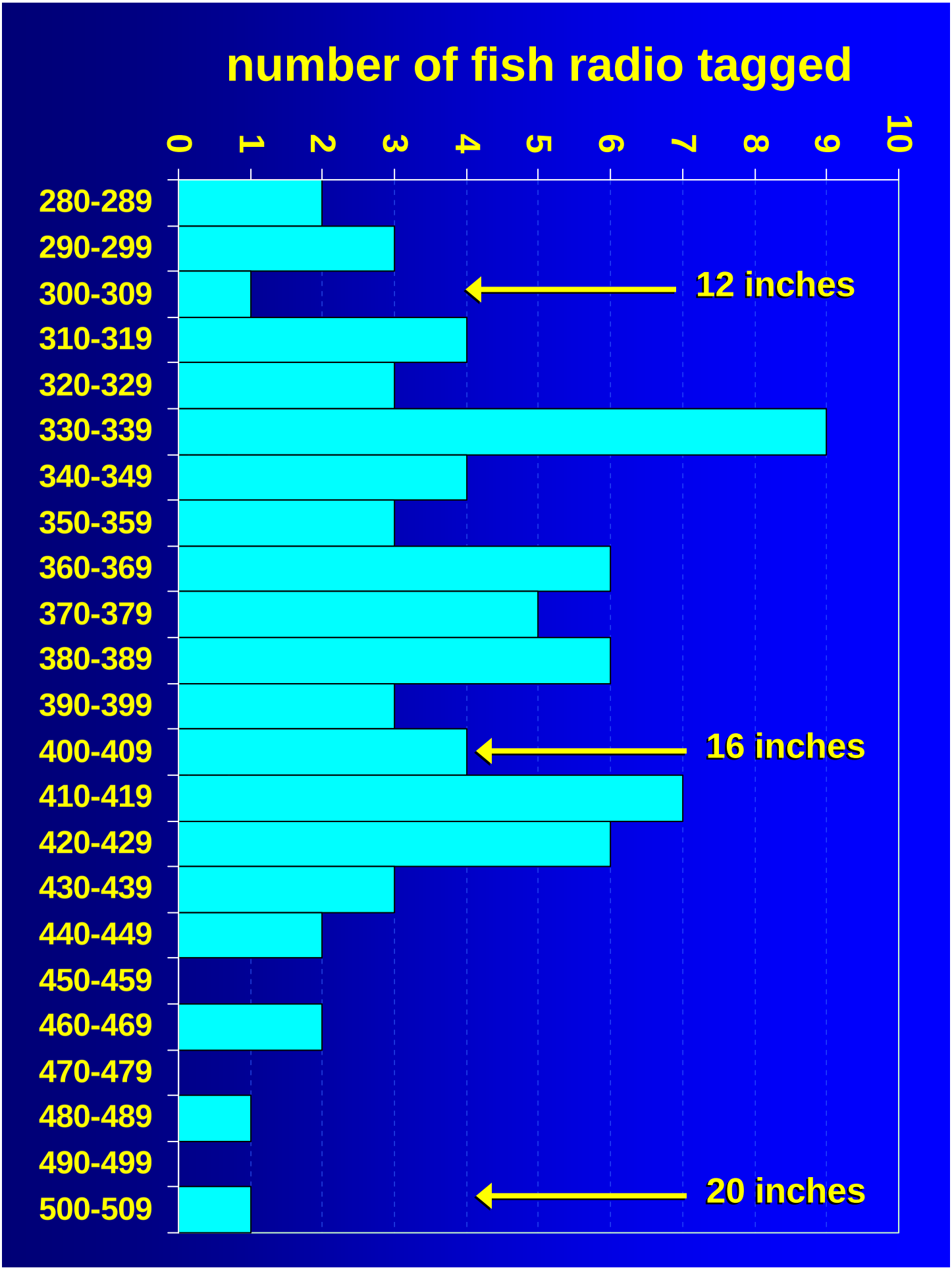
Habitat types (pool, riffle, run or glide)

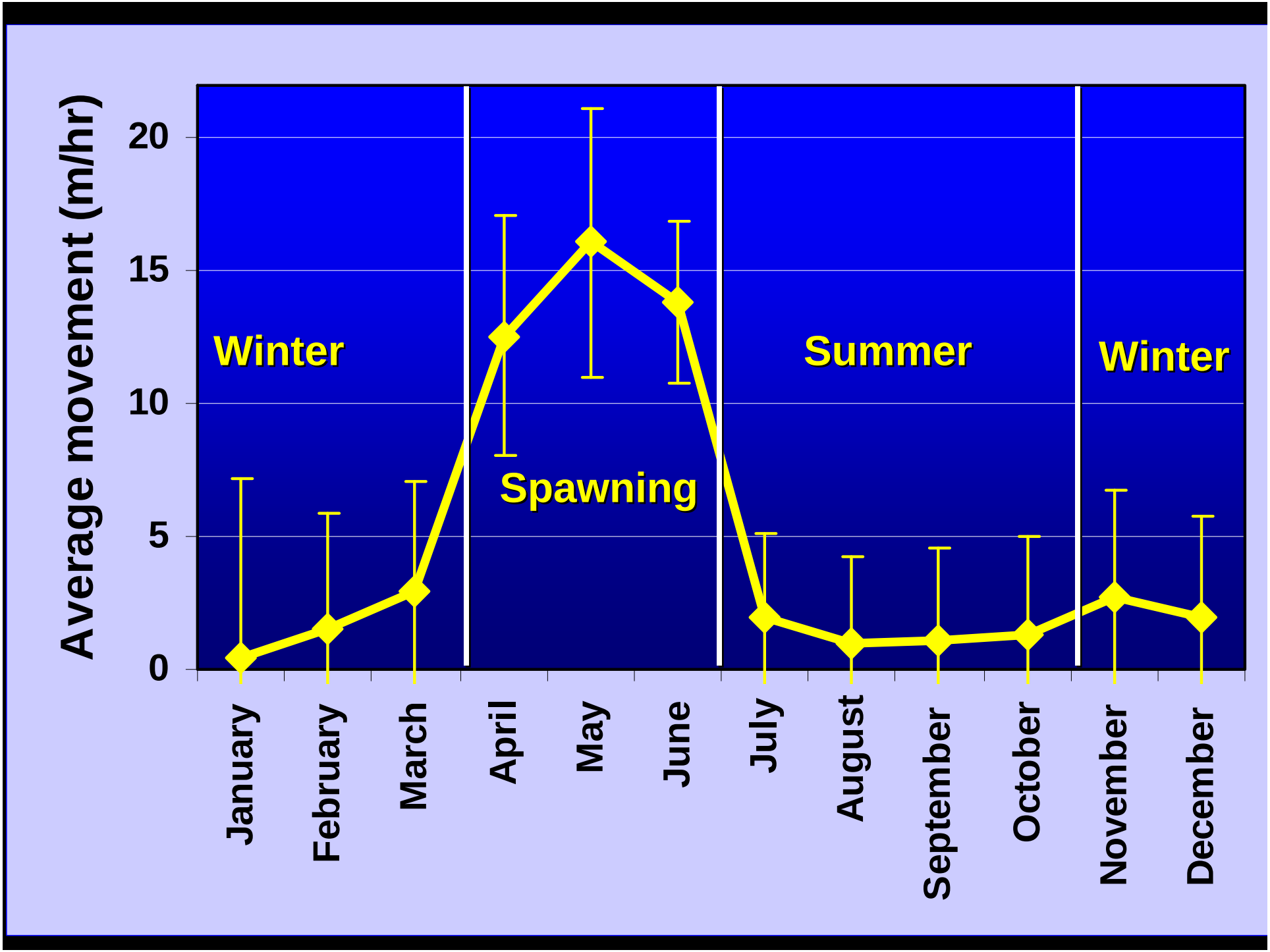
- **Lengths, Widths and Depths**
- **Cover**

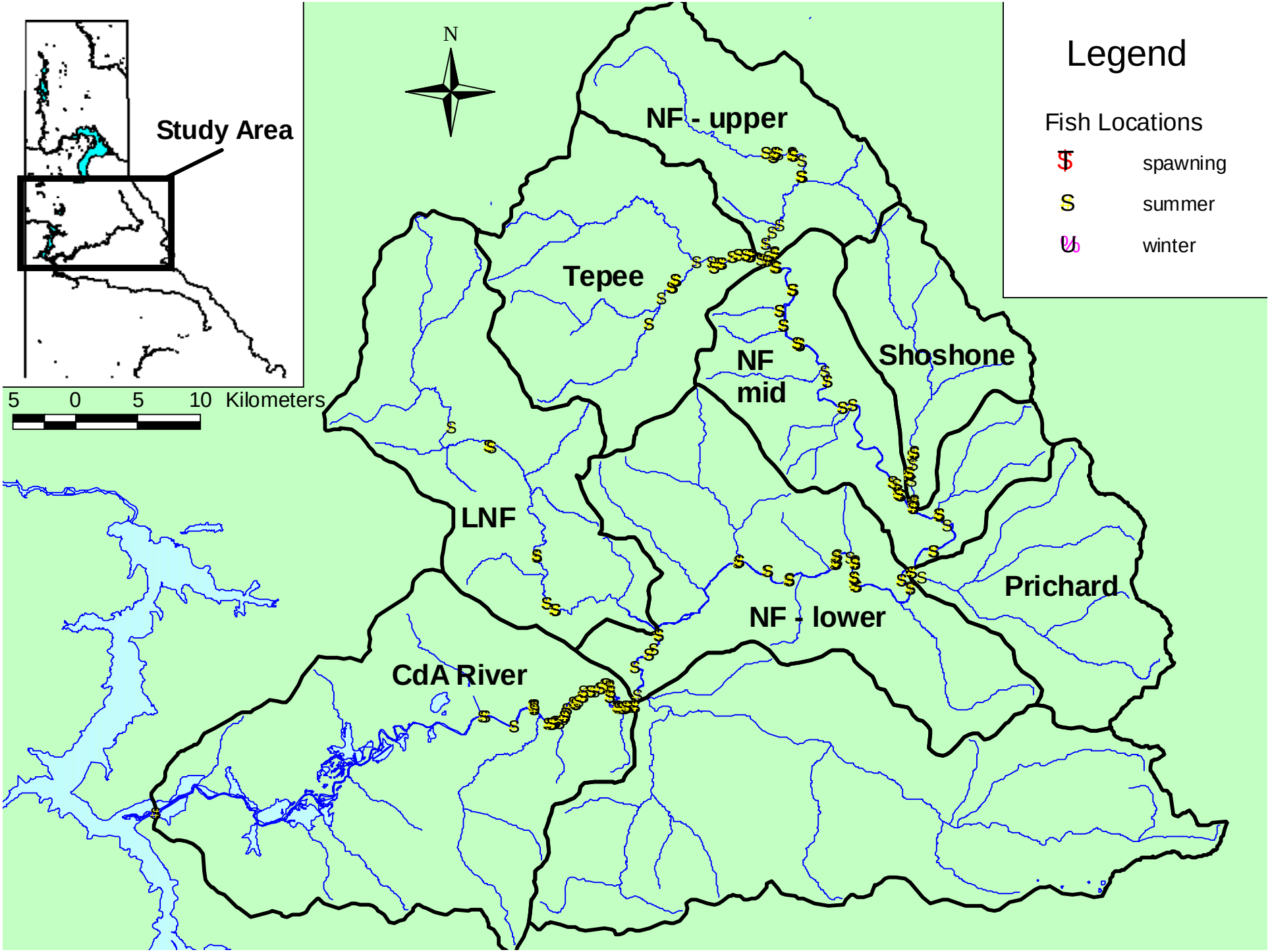

N
Legend
Habitat survey areas
1994
1995
1998
2001
2003
Lakes
Streams
Towns
Upper N.F. Coeur d'Alene River
Tepee Creek
Little N.F. Coeur d'Alene River
Middle N.F. Coeur d'Alene River
Shoshone Creek
Lower N.F. Coeur d'Alene River
Prichard Creek
Cataldo Mission Boat Ramp
Kellogg
Coeur d'Alene River
10 0 10 20 Kilometers

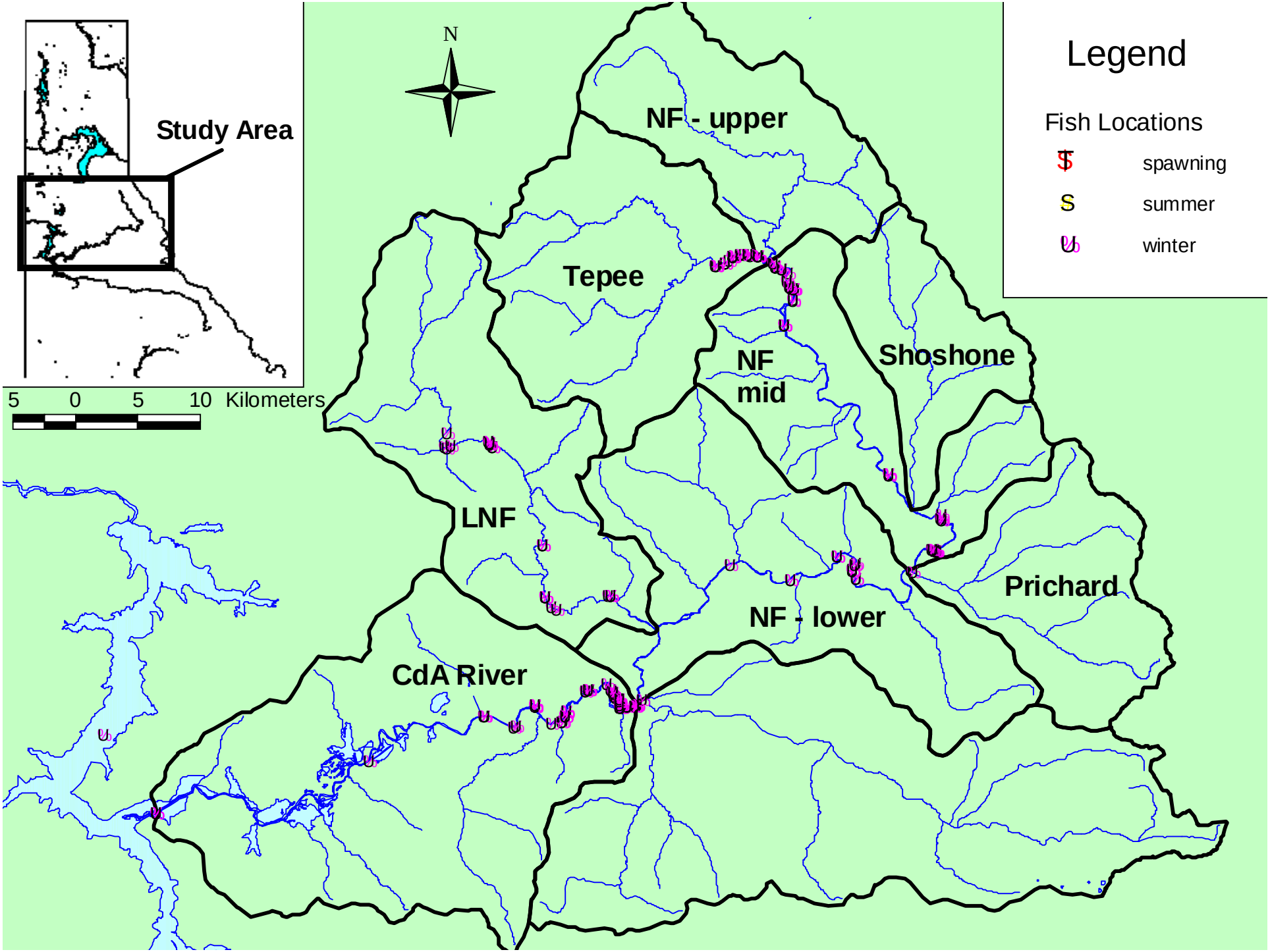
Findings

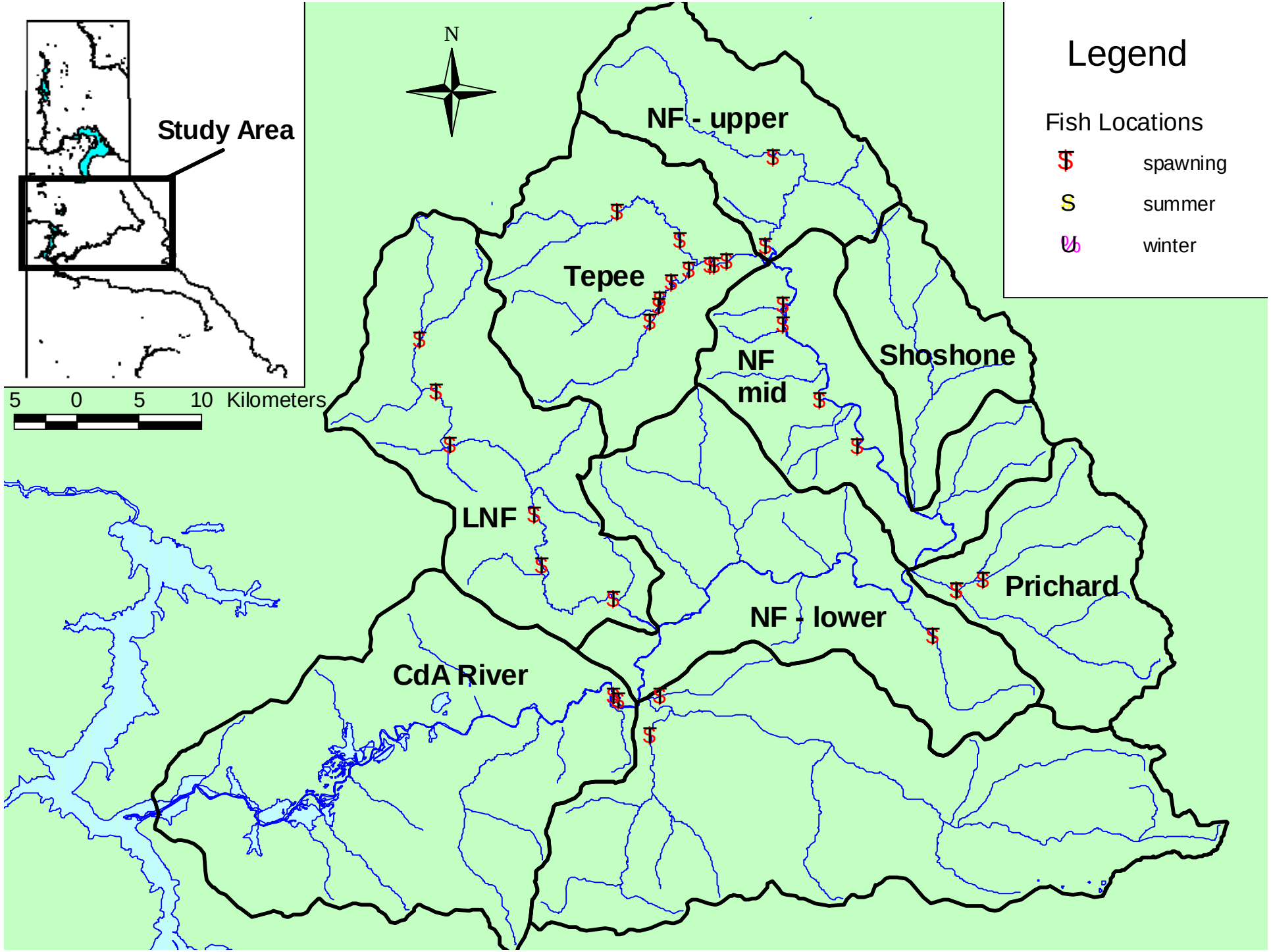

Legend
Capture location
May or June
September or October
Streams
Sampling Reaches
5 0 5 10 Kilometers
N
NF - upper
Tepee
NF mid
Shoshone
LNF
NF - lower
Prichard
CdA
Coeur d'Alene
Kellogg


number of fish radio tagged
0
1
2
3
4
5
6
7
8
9
10
280-289
290-299
300-309
310-319
320-329
330-339
340-349
350-359
360-369
370-379
380-389
390-399
400-409
410-419
420-429
430-439
440-449
450-459
460-469
470-479
480-489
490-499
500-509
12 inches
16 inches
20 inches

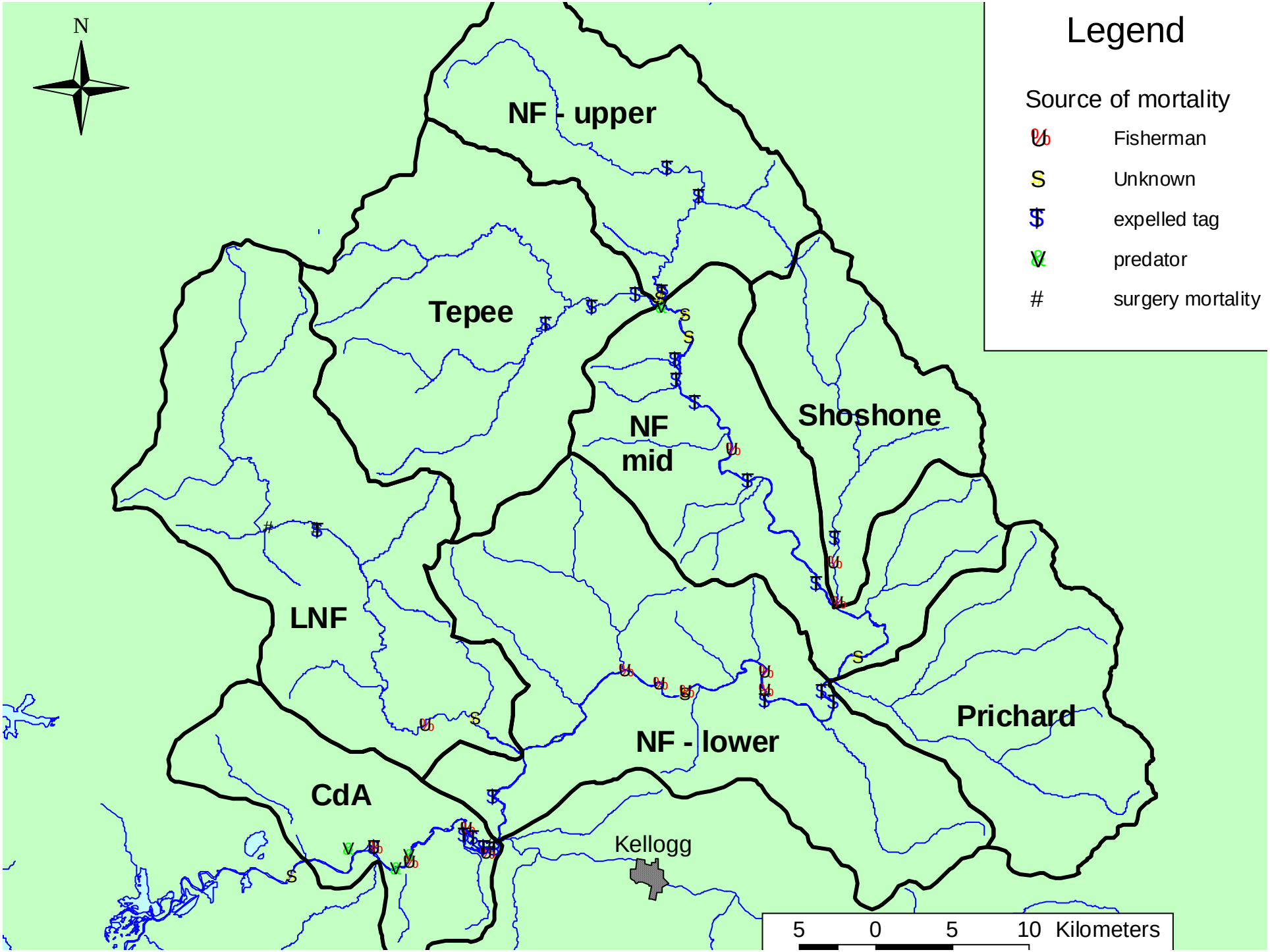

Average movement (m/hr)
20
15
10
5
0
Winter
Spawning
Summer
Winter
January
February
March
April
May
June
July
August
September
October
November
December

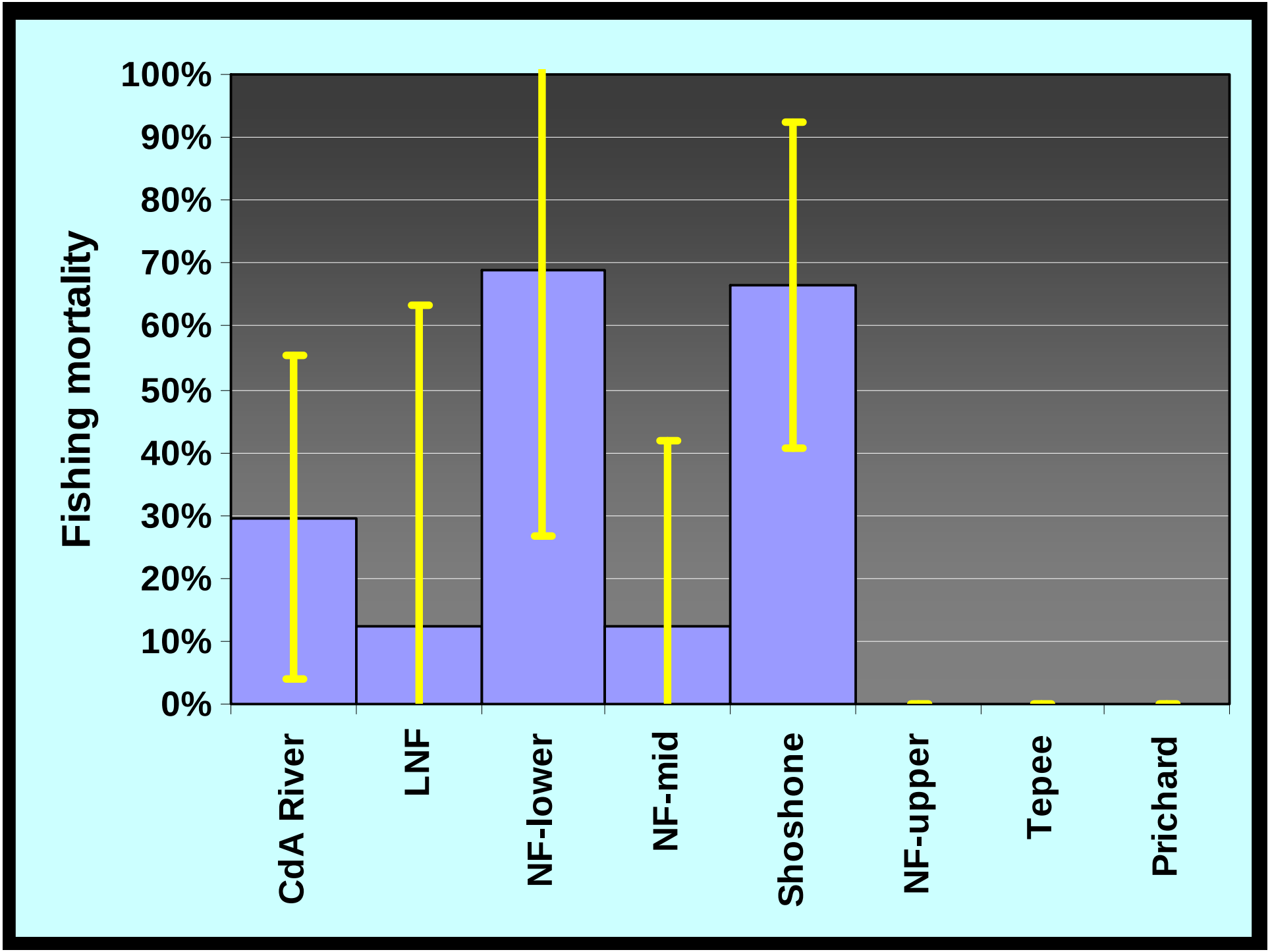

Study Area
5 0 5 10 Kilometers
N
NF - upper
Tepee
NF
mid
Shoshone
LNF
Prichard
NF - lower
CdA River
Legend
Fish Locations
spawning
summer
winter

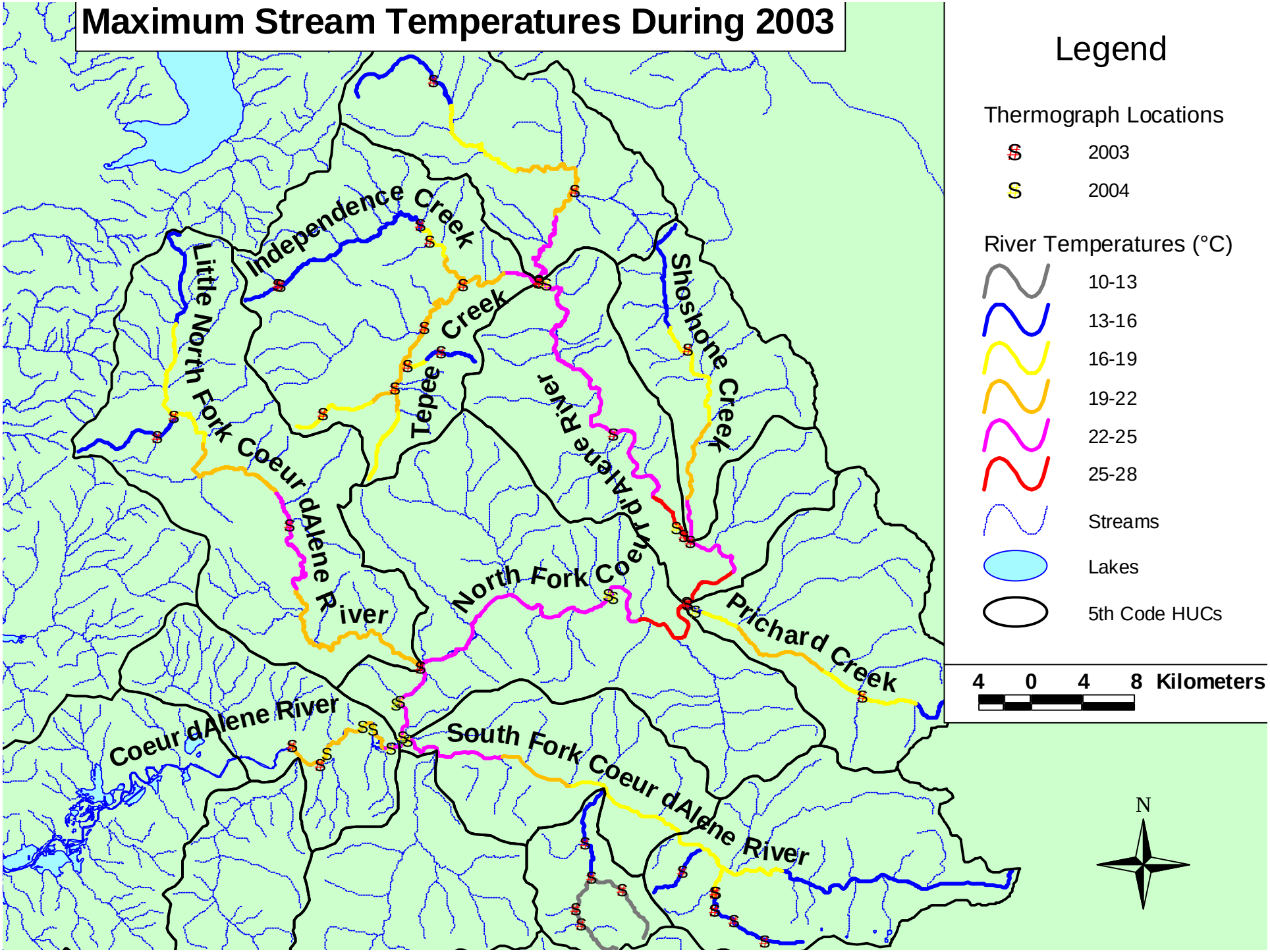

Study Area
5 0 5 10 Kilometers
N
NF - upper
Tepee
NF
mid
Shoshone
LNF
Prichard
NF - lower
CdA River
Legend
Fish Locations
spawning
summer
winter

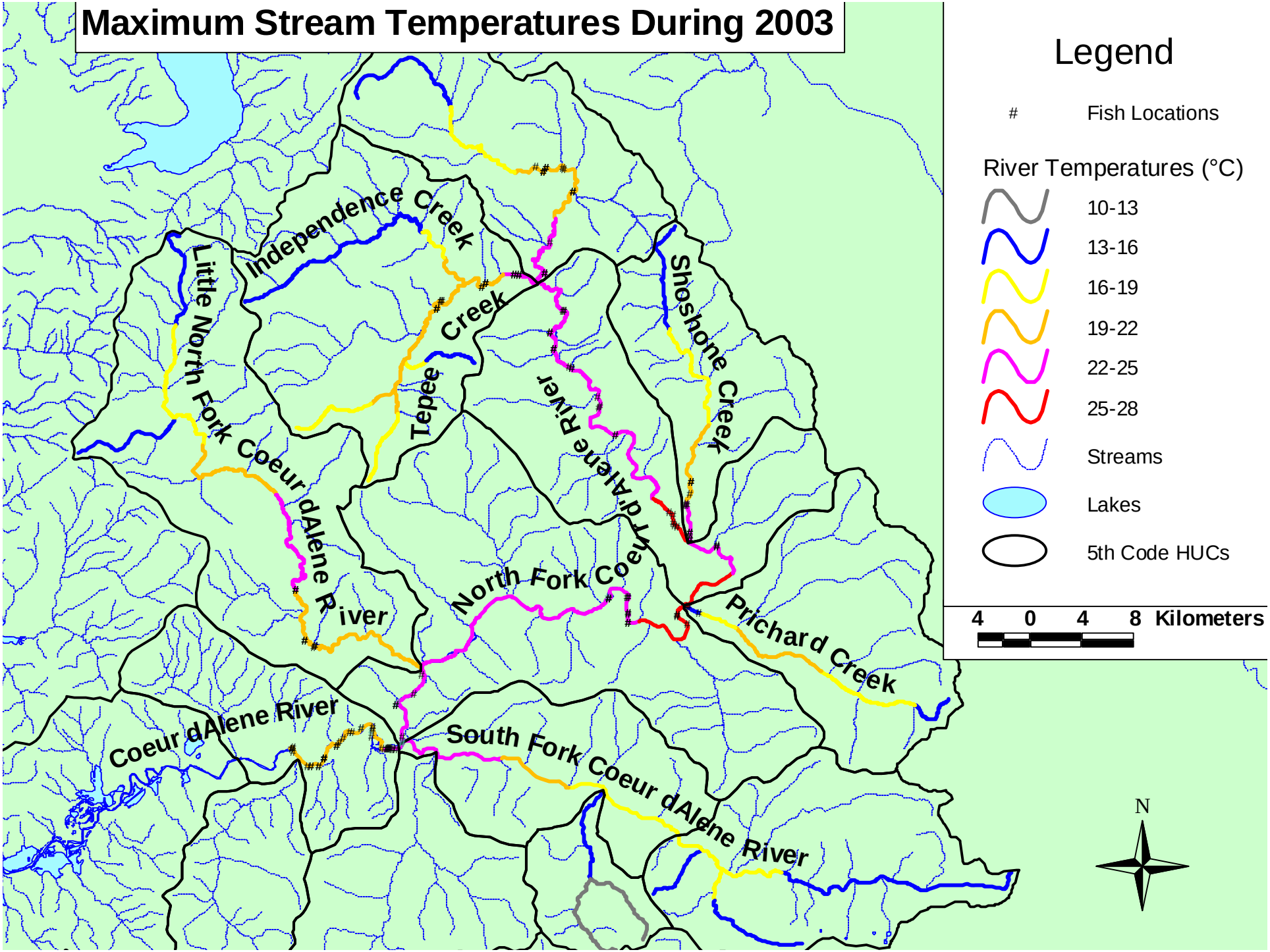

Study Area
5 0 5 10 Kilometers
N
NF - upper
Tepee
NF
mid
Shoshone
LNF
Prichard
NF - lower
CdA River
Legend
Fish Locations
spawning
summer
winter

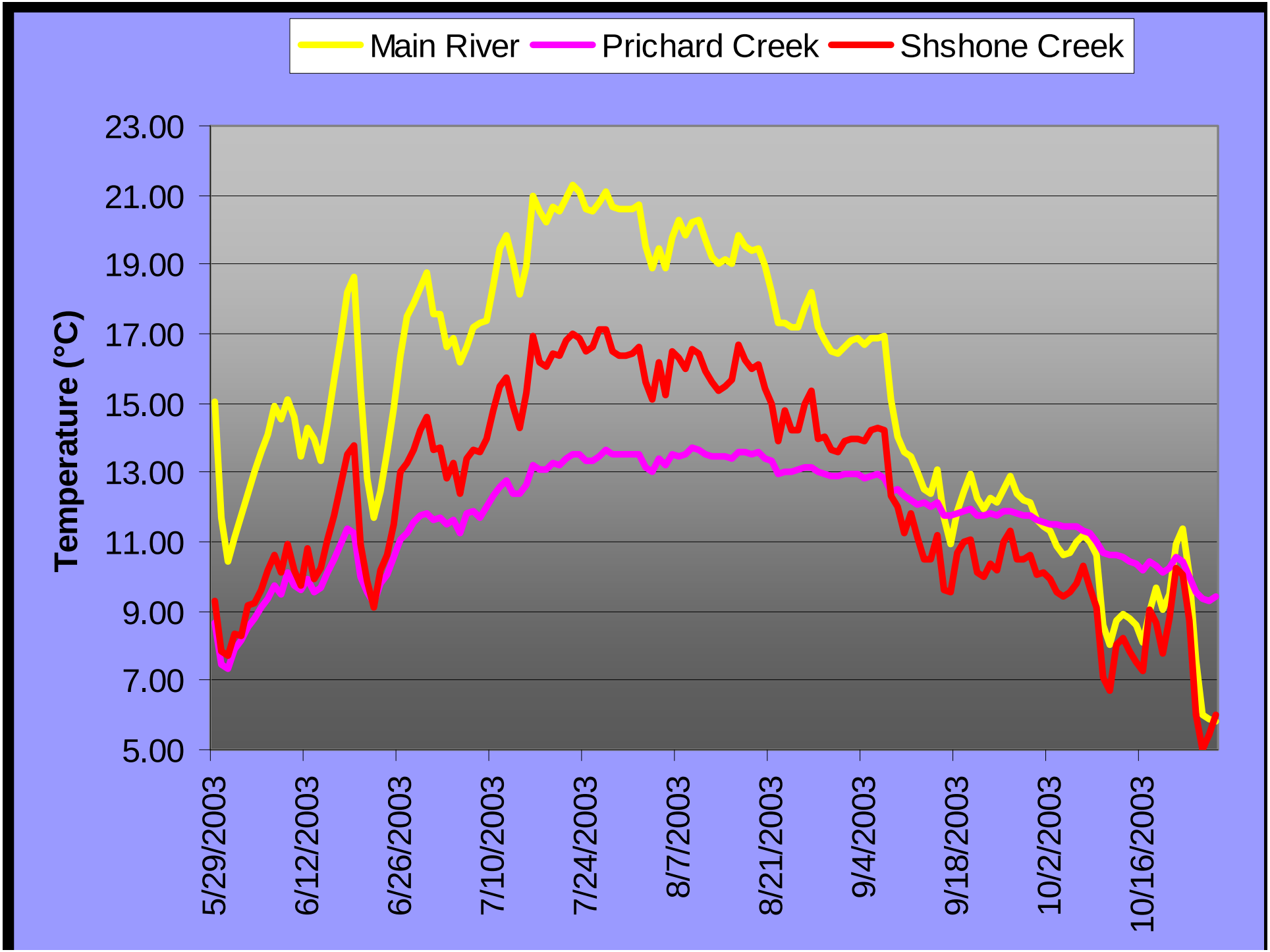
Mortality

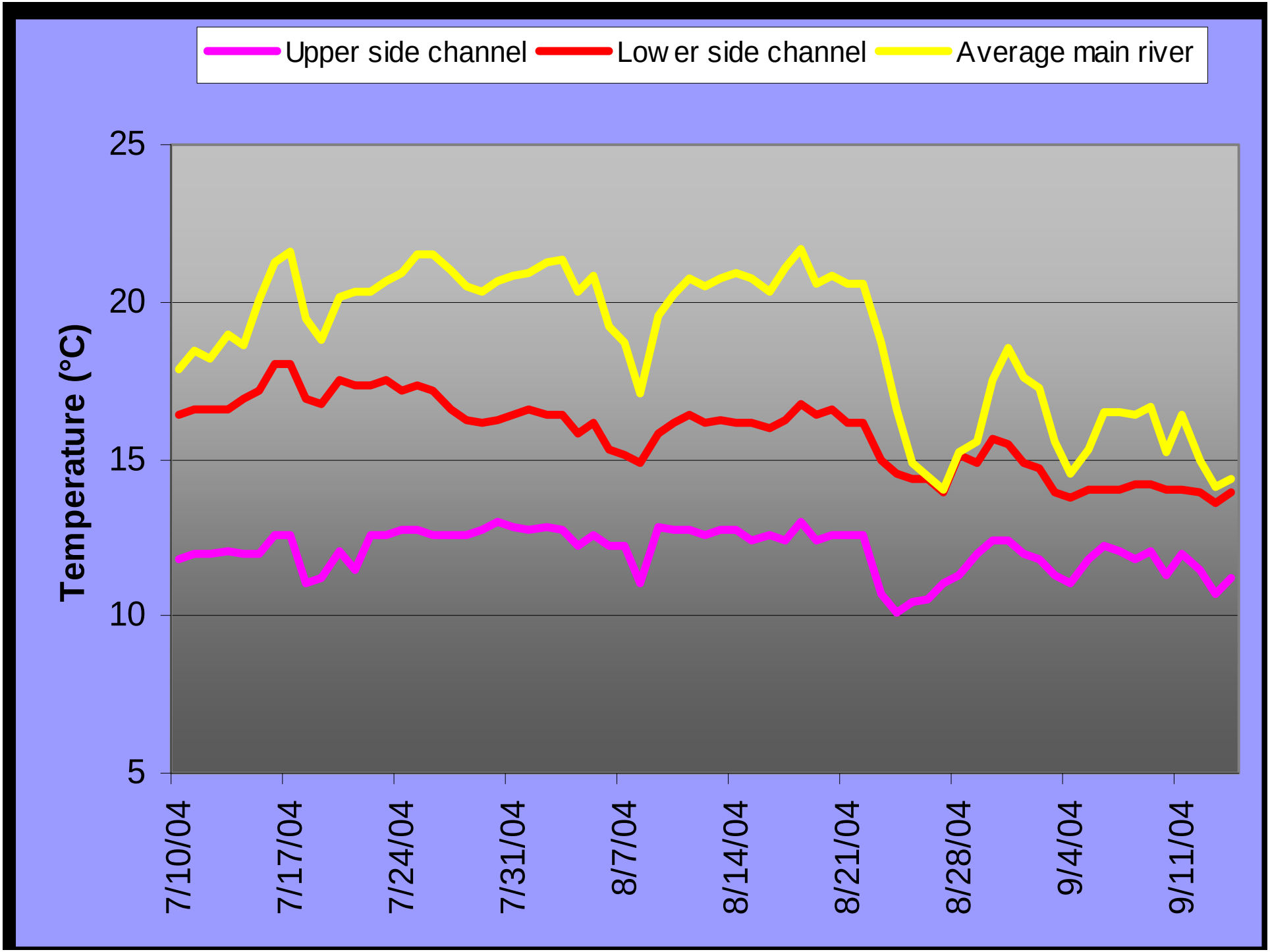

N
Legend
Source of mortality
Fisherman
Unknown
expelled tag
predator
surgery mortality
NF - upper
Tepee
NF
mid
Shoshone
LNF
NF - lower
Prichard
CdA
Kellogg
5 0 5 10 Kilometers

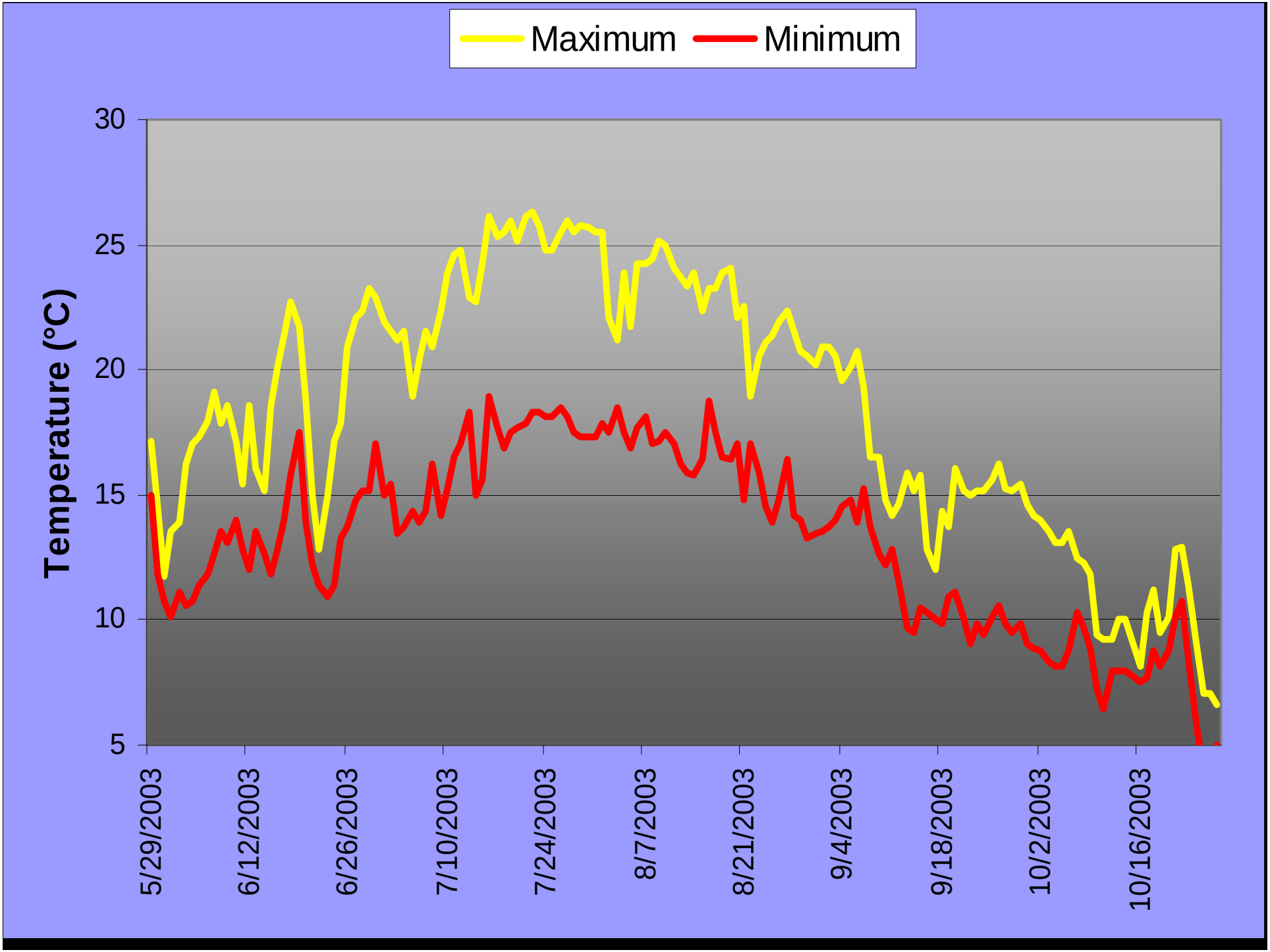

Fishing mortality
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
CdA River
LNF
NF-lower
NF-mid
Shoshone
NF-upper
Tepee
Prichard


Maximum Stream Temperatures During 2003
Legend
Thermograph Locations
2003
2004
River Temperatures (°C)
10-13
13-16
16-19
19-22
22-25
25-28
Streams
Lakes
5th Code HUCs
4 0 4 8 Kilometers
N
Independence Creek
Little North Fork Coeur dAlene River
Tepee Creek
St. Joe River
Shoshone Creek
North Fork Coeur dAlene River
Prichard Creek
Coeur dAlene River
South Fork Coeur dAlene River


Maximum Stream Temperatures During 2003
Legend
Fish Locations
River Temperatures (°C)
10-13
13-16
16-19
19-22
22-25
25-28
Streams
Lakes
5th Code HUCs
4 0 4 8 Kilometers
N
Independence Creek
Little North Fork Coeur dAlene River
Tepee Creek
St. Joe River
Shoshone Creek
North Fork Coeur dAlene River
Prichard Creek
Coeur dAlene River
South Fork Coeur dAlene River

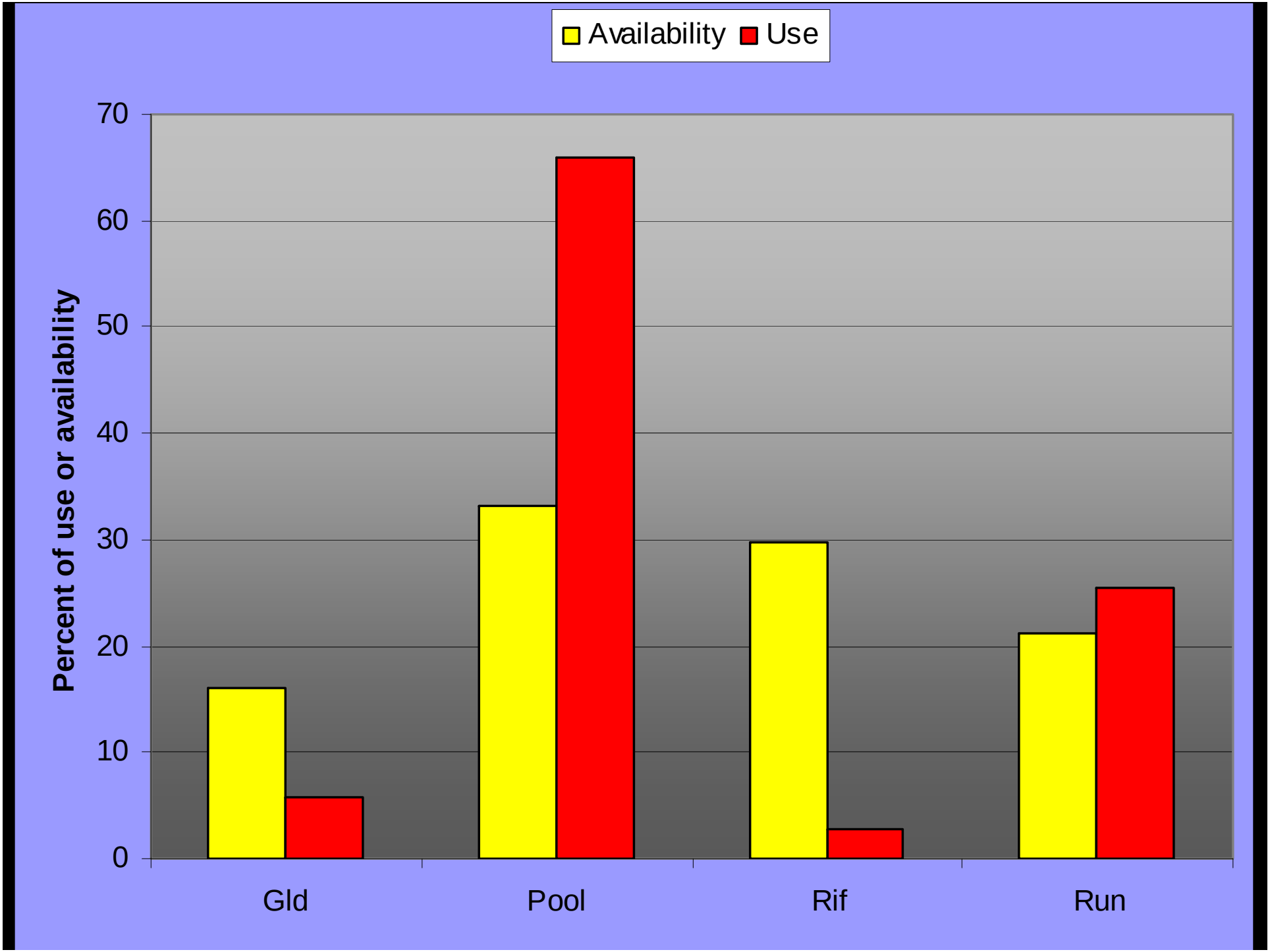

Main River
Prichard Creek
Shshone Creek
Temperature (°C)
23.00
21.00
19.00
17.00
15.00
13.00
11.00
9.00
7.00
5.00
5/29/2003
6/12/2003
6/26/2003
7/10/2003
7/24/2003
8/7/2003
8/21/2003
9/4/2003
9/18/2003
10/2/2003
10/16/2003

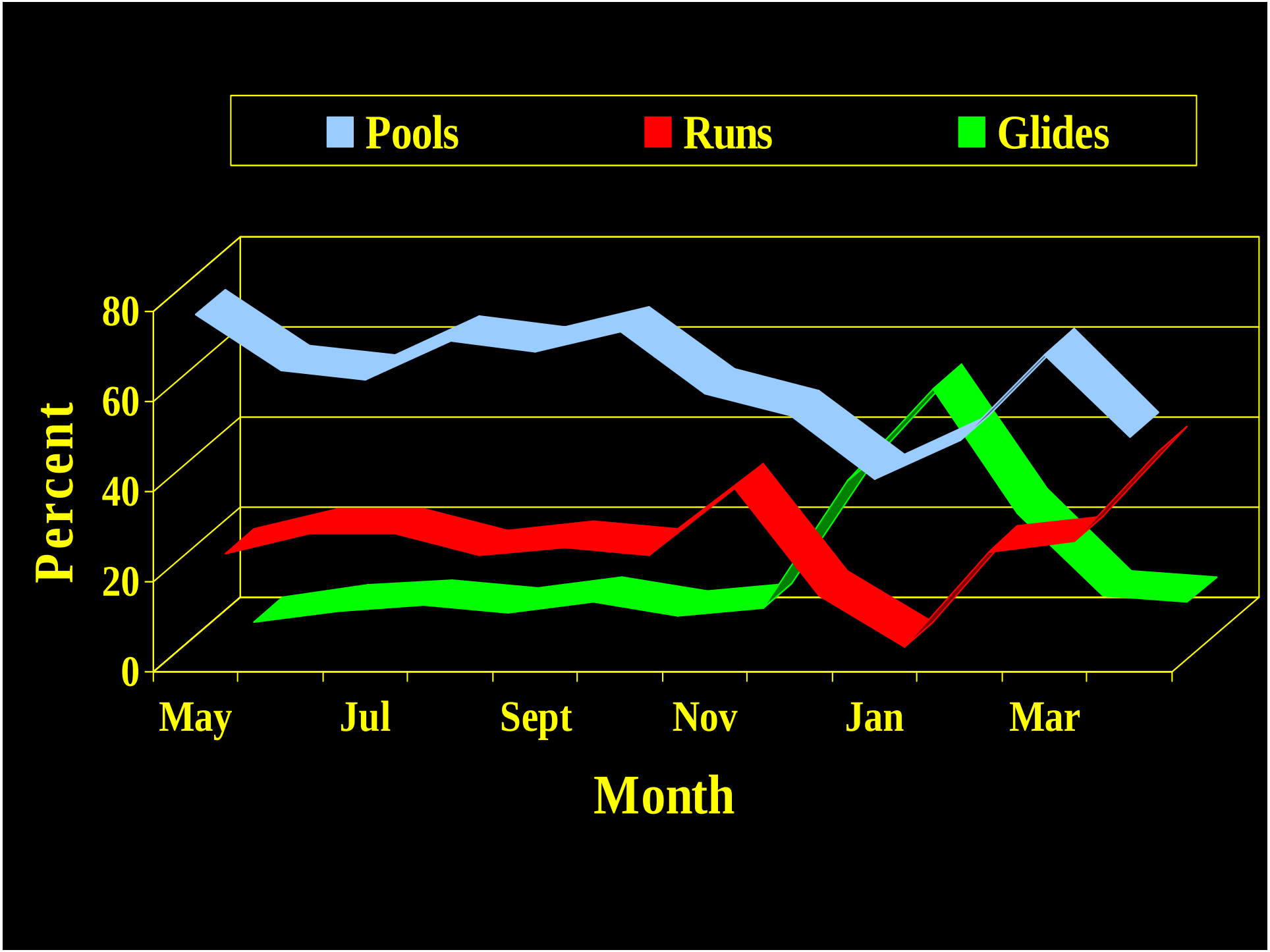

Upper side channel
Lower side channel
Average main river
Temperature (°C)
25
20
15
10
5
7/10/04
7/17/04
7/24/04
7/31/04
8/7/04
8/14/04
8/21/04
8/28/04
9/4/04
9/11/04

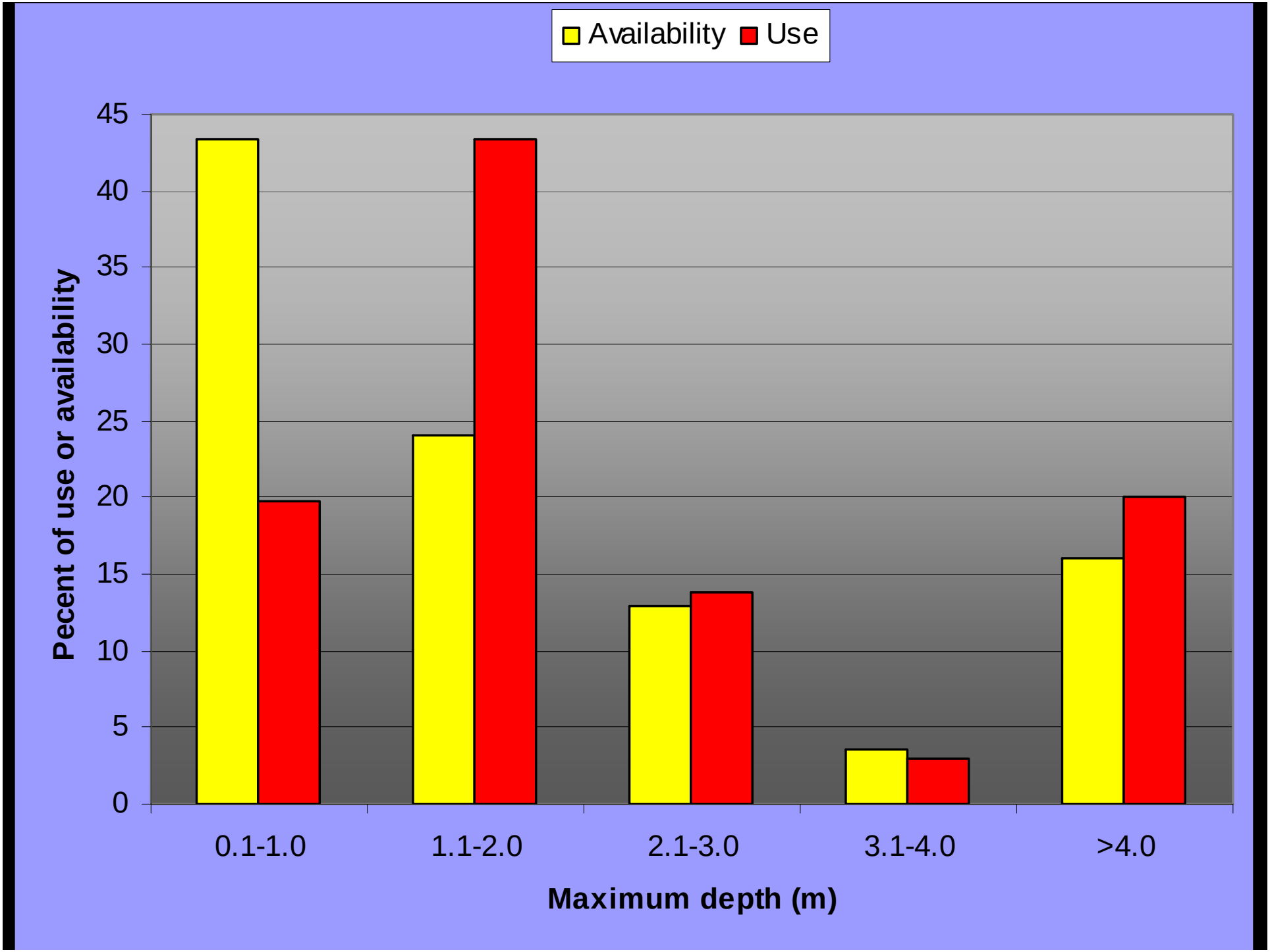

Maximum
Minimum
Temperature (°C)
30
25
20
15
10
5
5/29/2003
6/12/2003
6/26/2003
7/10/2003
7/24/2003
8/7/2003
8/21/2003
9/4/2003
9/18/2003
10/2/2003
10/16/2003

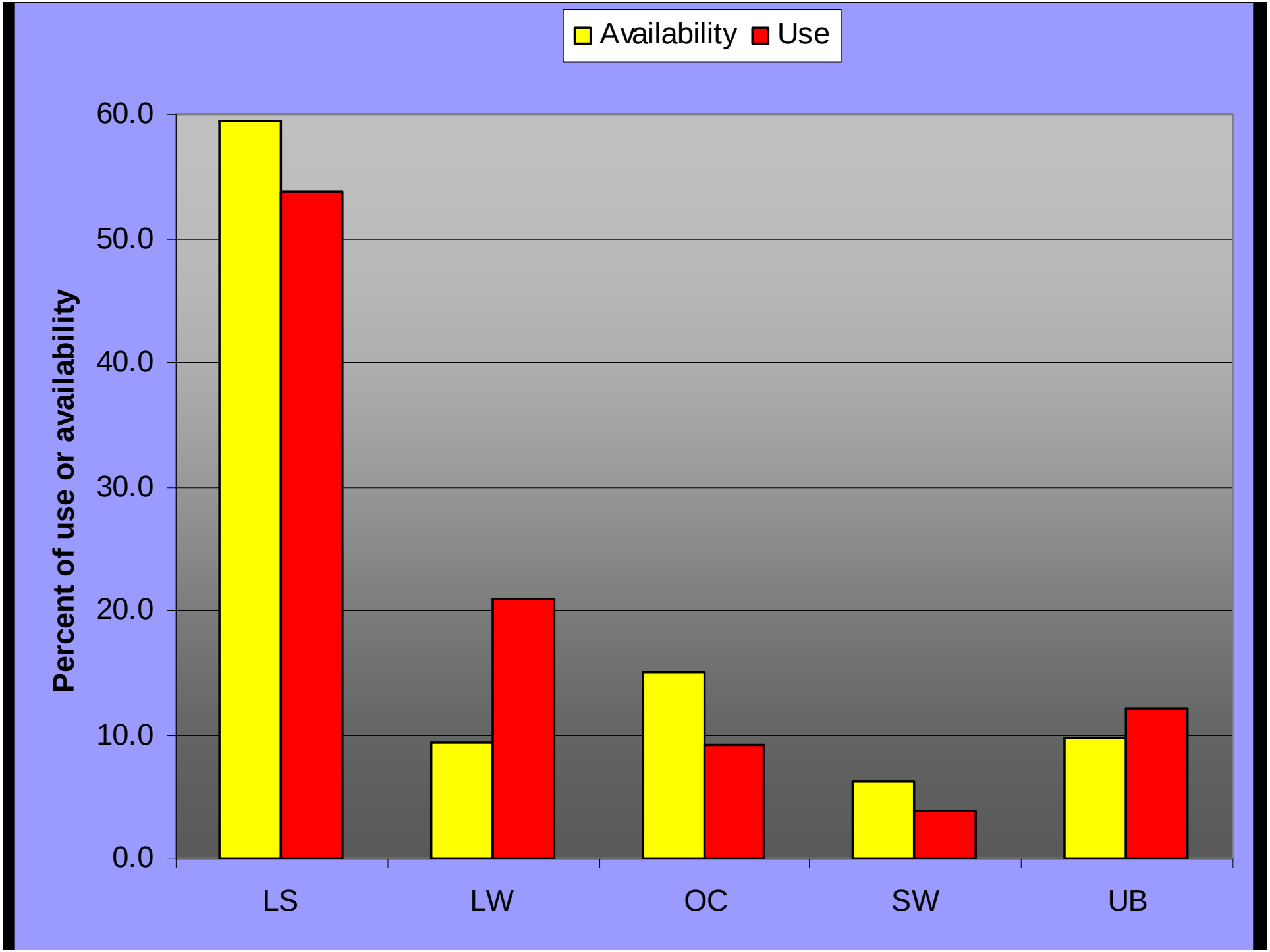
04/19/2004

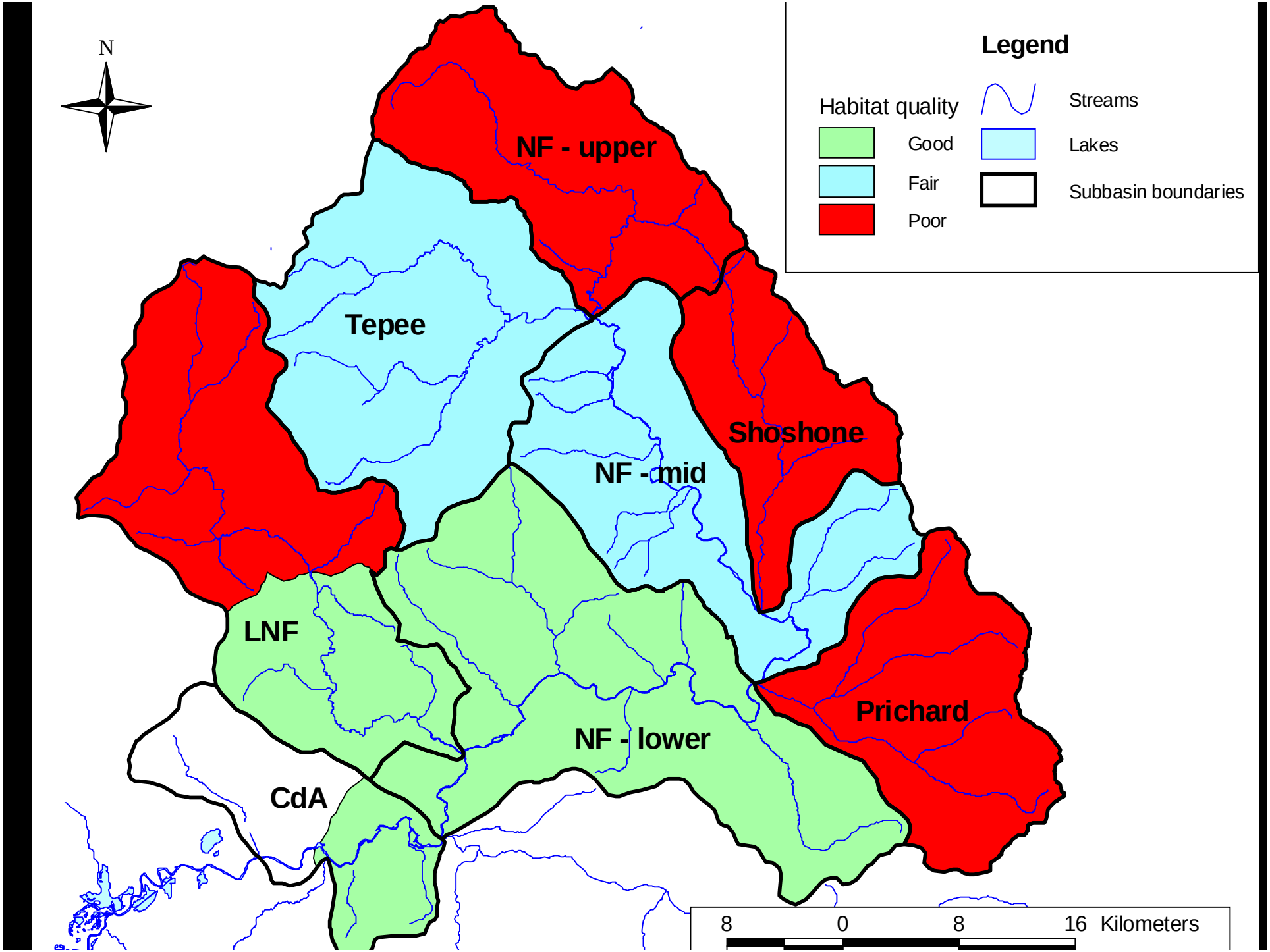
Habitat Use Versus Availability

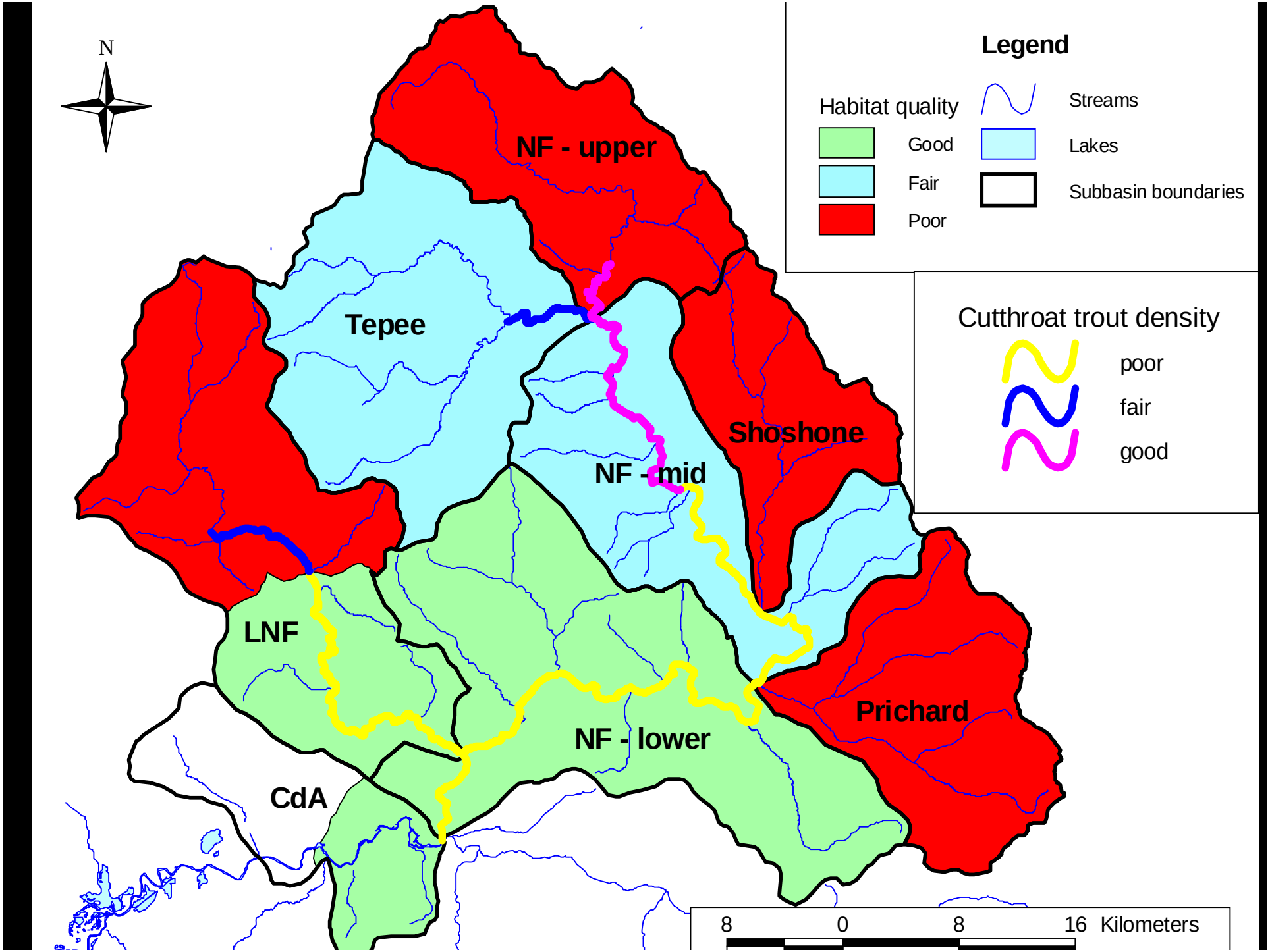

Availability
Use
Percent of use or availability
70
60
50
40
30
20
10
0
Gld
Pool
Rif
Run


Pools
Runs
Glides
Percent
80
60
40
20
0
May
Jul
Sept
Nov
Jan
Mar
Month


Availability
Use
45
40
35
30
25
20
15
10
5
0
Pecent of use or availability
0.1-1.0
1.1-2.0
2.1-3.0
3.1-4.0
>4.0
Maximum depth (m)


Availability
Use
Percent of use or availability
60.0
50.0
40.0
30.0
20.0
10.0
0.0
LS
LW
OC
SW
UB


N
Legend
Habitat quality
Good
Fair
Poor
Streams
Lakes
Subbasin boundaries
NF - upper
Tepee
Shoshone
NF - mid
LNF
Prichard
NF - lower
CdA
8
0
8
16 Kilometers


N
Legend
Habitat quality
Good
Fair
Poor
Streams
Lakes
Subbasin boundaries
Cutthroat trout density
poor
fair
good
NF - upper
Tepee
Shoshone
NF - mid
LNF
Prichard
NF - lower
CdA
8 0 8 16 Kilometers

Summary

- Four main factors that we believe help explain why densities of cutthroat trout > 12 inches have remained so low in the Coeur d'Alene River.

- Non compliance with the fishing regulations
- Degraded or loss of cold water refugia
- Degraded or loss of over-winter habitat
- Degraded summer rearing habitat.

Recommendations

- Efforts such as increased education, posting of fishing regulations and enforcement should occur in the areas where limited harvest occurs to reduce illegal harvest.

- When developing fishing regulations in the Coeur d'Alene River watershed one should consider each sub-basin separately. Movement patterns of these fish allow unique opportunities to restructure the fishing regulations.

- Future planning and zoning activities need to be made aware of the importance of the floodplain in protecting and improving the cutthroat trout fishery

- **Effort should be made to reconnect, and/or construct side channels to increase cold water refugia.**

- **Efforts should be made to help protect and preserve over-winter habitat on private property along lower Tepee Creek.**

- **Continue efforts should occur to improve habitat conditions in Shoshone Creek and Prichard Creek to increase the carrying capacity larger cutthroat trout that utilize this stream during critically hot periods.**

- **Encourage efforts to continue with reductions in heavy metals throughout the Coeur d'Alene River watershed.**

QUESTIONS?