

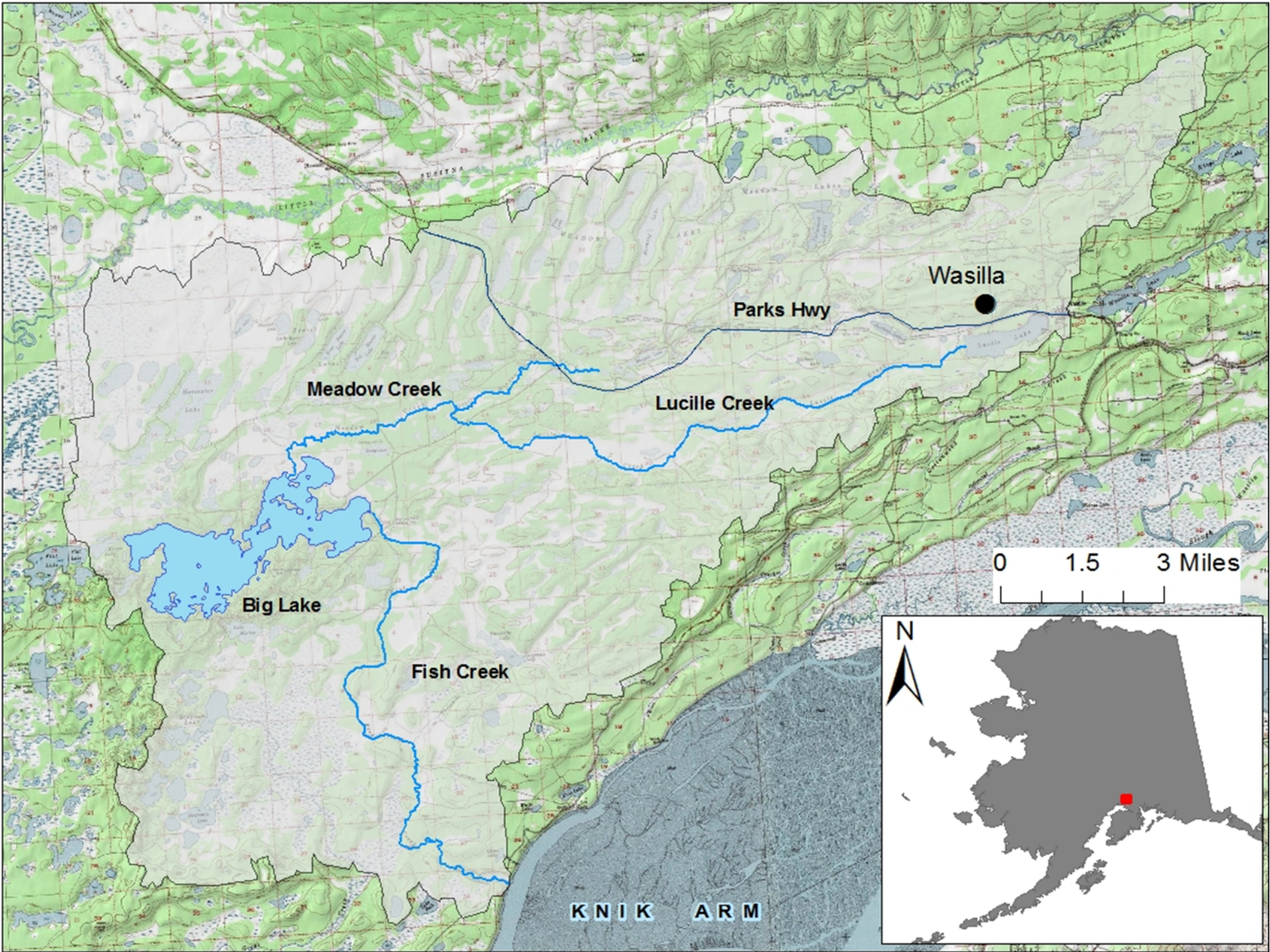


Coho Salmon Smolt Migration Dynamics Within the Big Lake Watershed, Alaska

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**United States Fish and Wildlife Service
AFS-Alaska 11/4/2015**





Wasilla

Parks Hwy

Meadow Creek

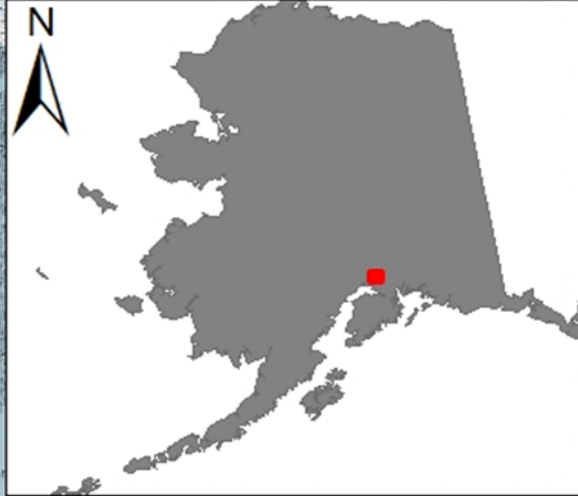
Lucille Creek

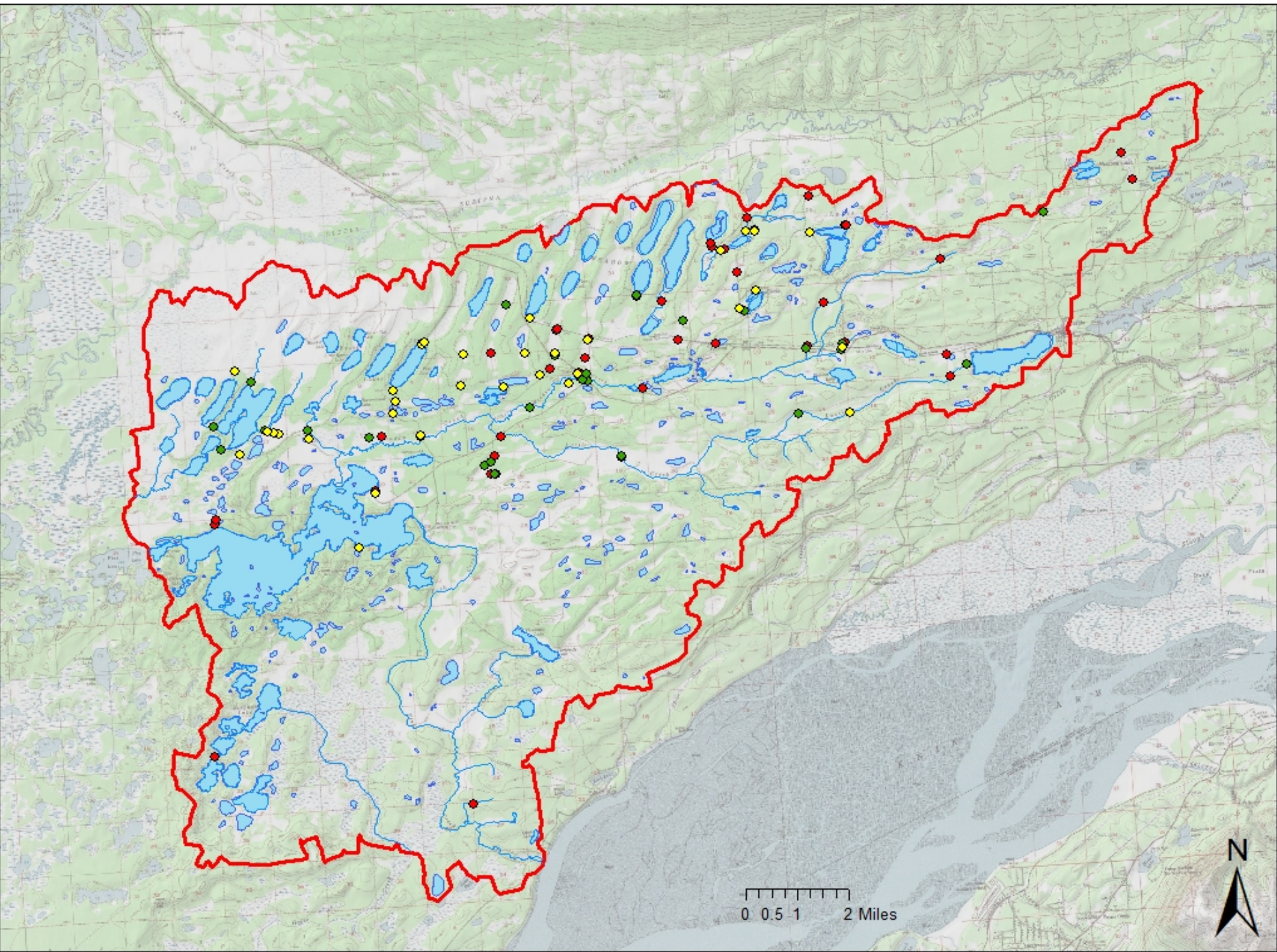
Big Lake

Fish Creek

0 1.5 3 Miles

KNIK ARM







Objectives

1. Determine and compare the survival rates of juvenile Coho Salmon during the smolt migration in 2012-2013
 - Overwintering areas within drainages

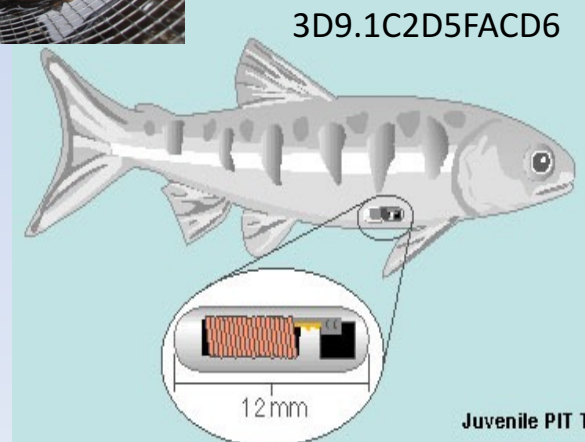
2. Discuss variables potentially affecting differences in survival during the smolt migration in 2012-2013

- Distance from estuary
- Number of culverts passed
- Smolt Length



Methods: Capture and Tagging

- Baited minnow traps
- 6,224 juvenile Coho Salmon tagged with passive integrated transponder (PIT) tags



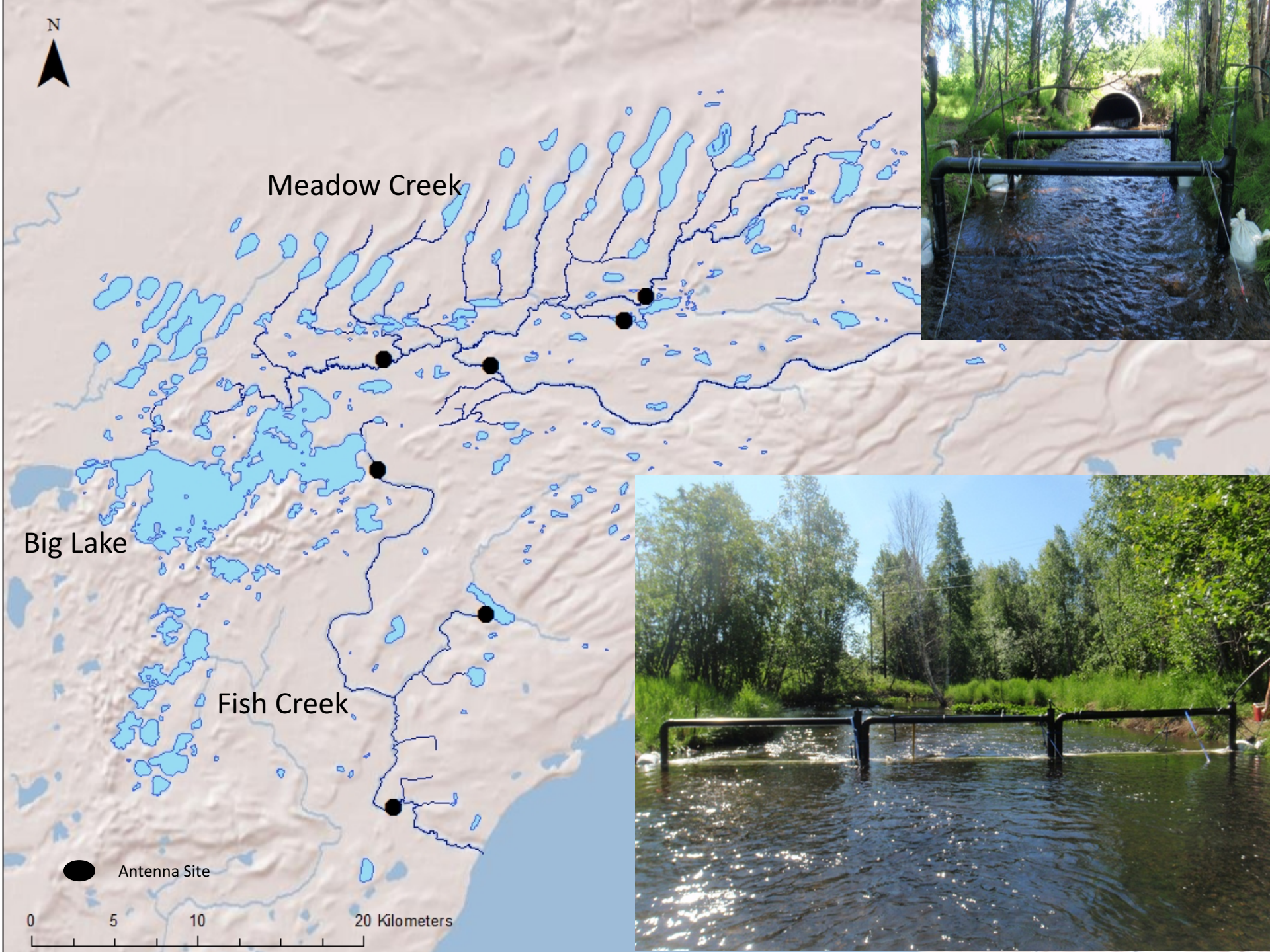
Juvenile PIT Tag



Methods: Detection

- Physical recapture
 - 2,950 recaptures
- Passive detection at fixed antenna site
 - ~ 18,000 detections



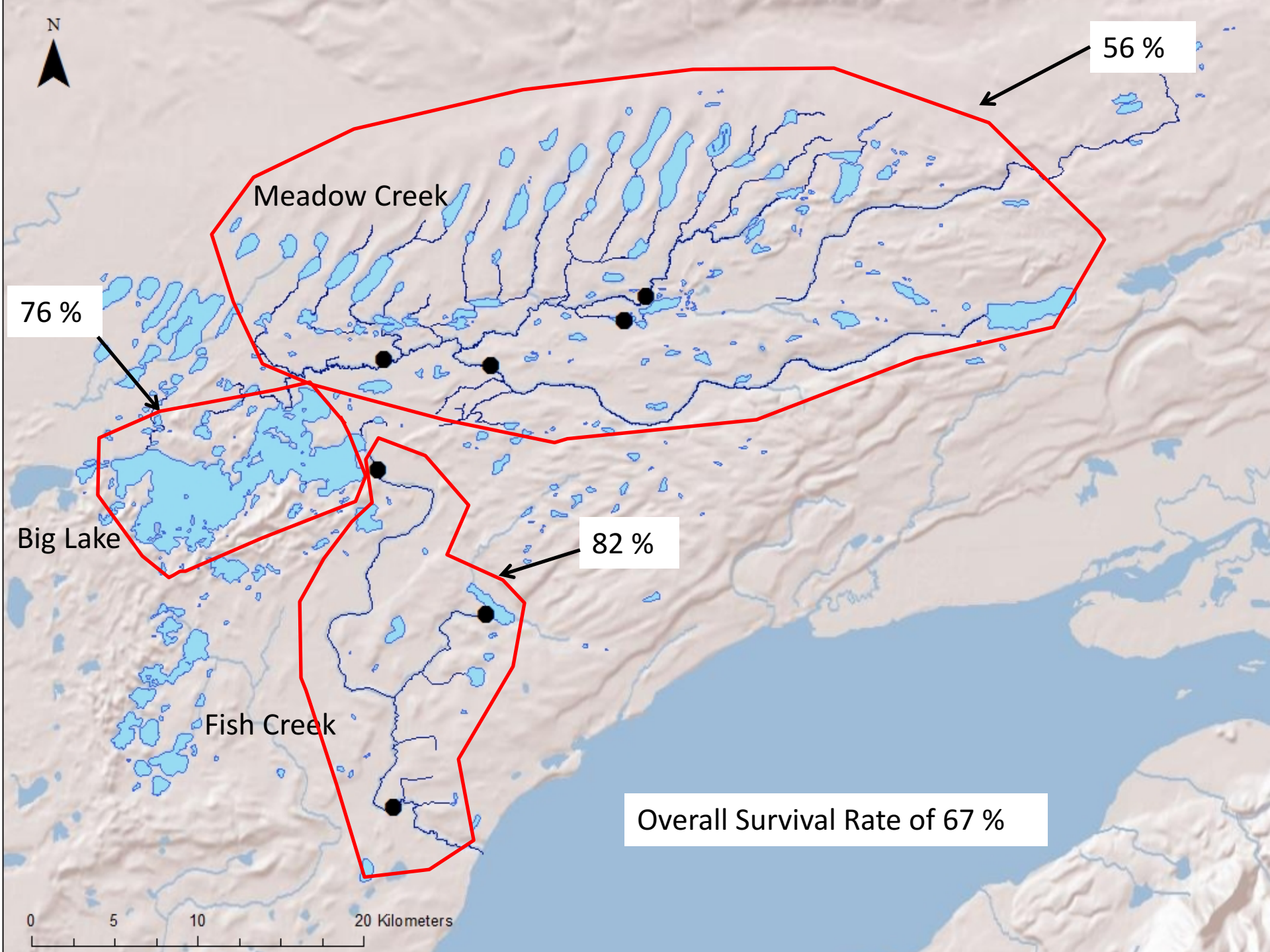






Smolt by the numbers

- Recall: 6,224 PIT tags deployed
- 2,191 (35%) PIT tagged juvenile Coho Salmon initiated a smolt migration
- 1,463 (24%) PIT tagged juvenile Coho Salmon successfully smolted



56 %

Meadow Creek

76 %

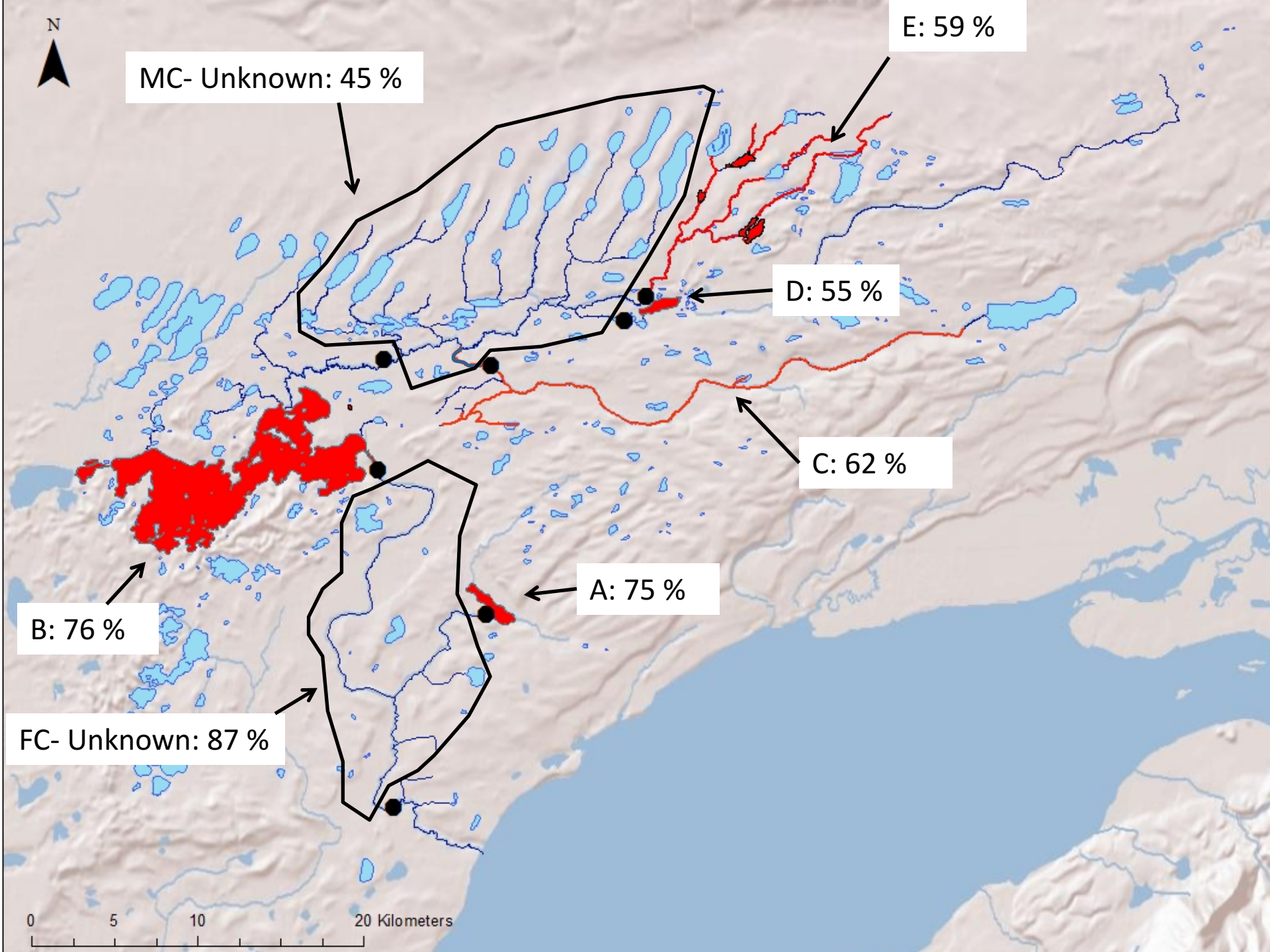
Big Lake

82 %

Fish Creek

Overall Survival Rate of 67 %

0 5 10 20 Kilometers





Distance from estuary

Overwintering Area	Survival Rate (%)	Distance From Estuary (rkm)
Group A	75	12.3
Group B	76	18.8
Group C	62	33.8
Group D	55	37.7
Group E	59	39.6

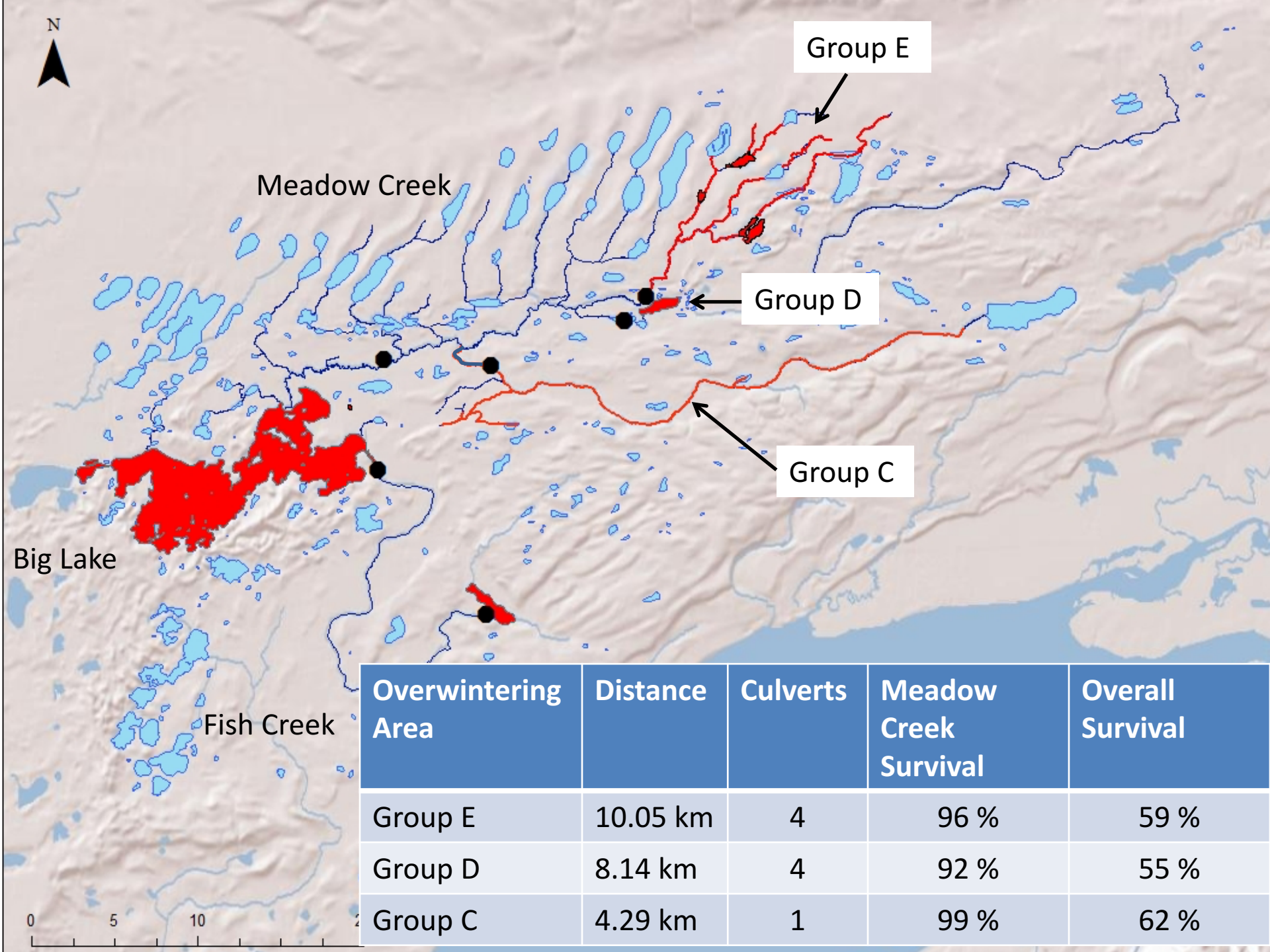




Culverts Encountered

Overwintering Area	Survival Rate (%)	Culverts Encountered
Group A	75	0
FC- Unknown	87	0
Group B	76	0
Group C	62	1
Group D	55	4
Group E	59	4
MC- Unknown	45	1 - 6





Size doesn't matter

Overwintering Area	Survival Rate (%)	Average Smolt Size (mm)
Group A	75	137
Group B	76	124
Group C	62	139
Group D	55	128
Group E	59	140
FC- Unknown	87	115
MC- Unknown	45	129



Conclusions

- Survival rates are lower for Meadow Creek smolts, despite being the largest size
- Survival seems to be most dependent upon distance, but may vary with size
- Big Lake- Death Star!!



Acknowledgements

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