

APPENDIX J: TIR IMAGES

**Susitna-Watana Hydroelectric Project
(FERC No. 14241)**

Baseline Water Quality Study (5.5)

**Appendix J
TIR Images**

Initial Study Report

Prepared for

Alaska Energy Authority



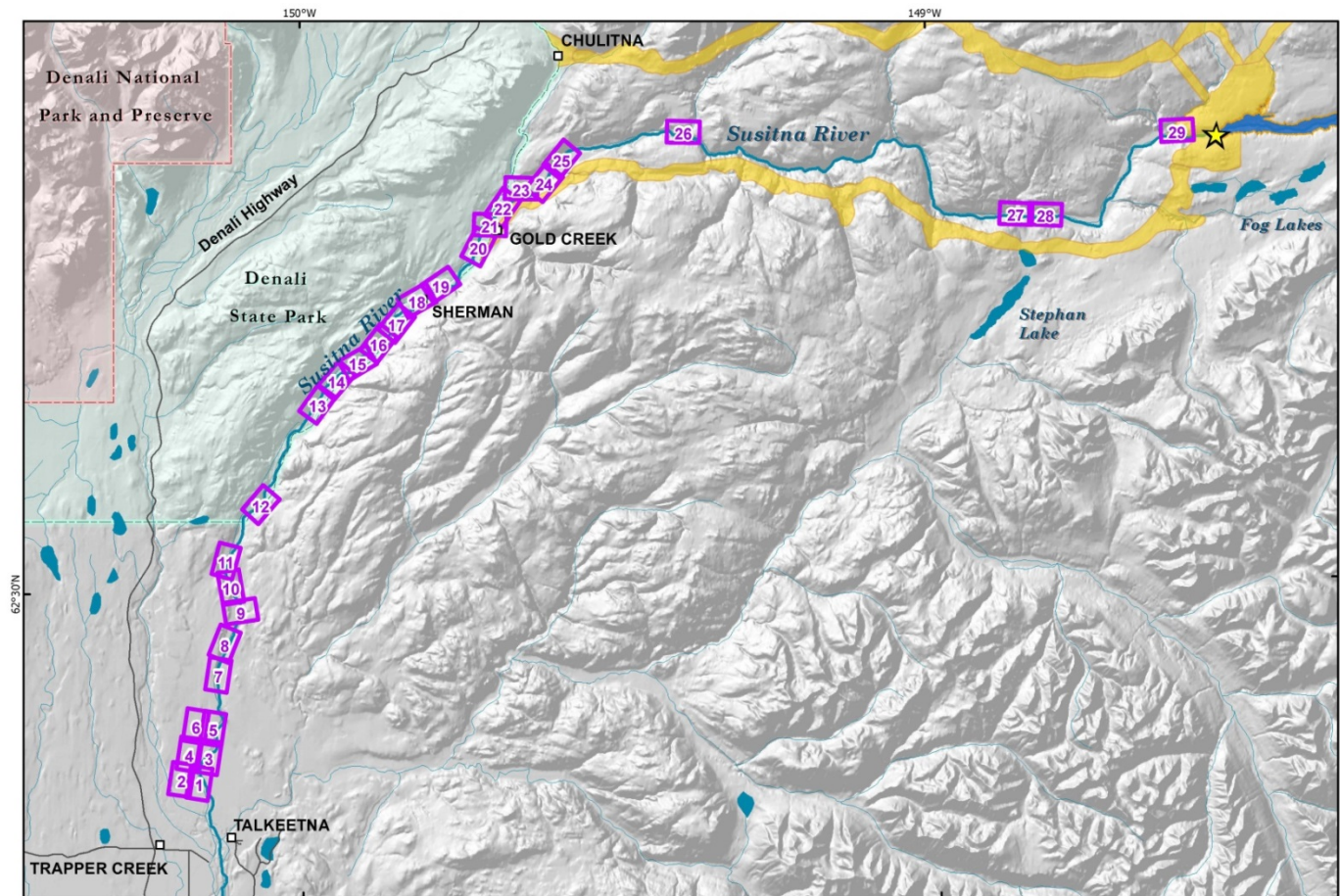
SUSITNA-WATANA HYDRO

Clean, reliable energy for the next 100 years.

Prepared by

Tetra Tech

February 2014 Draft

**LEGEND**

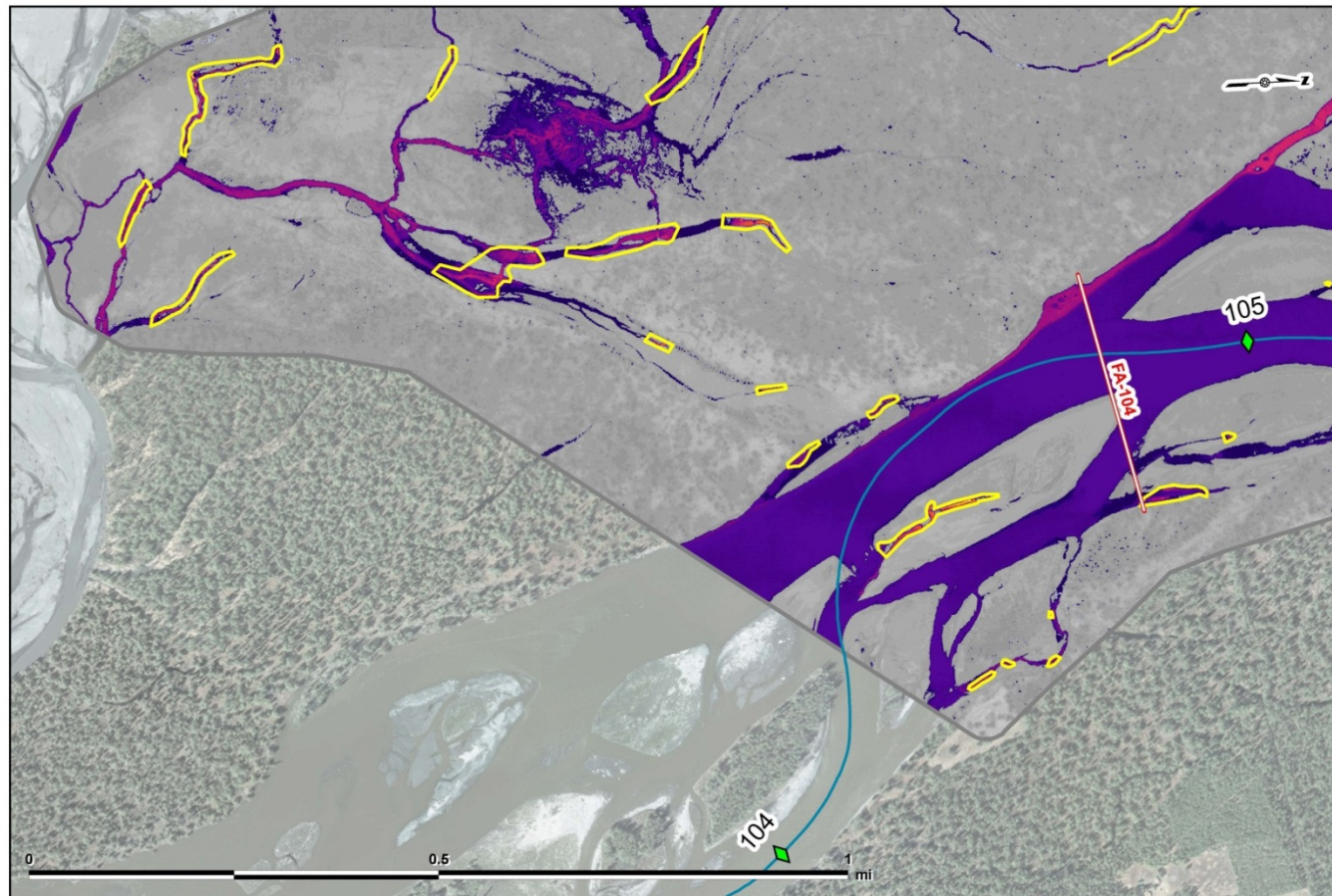
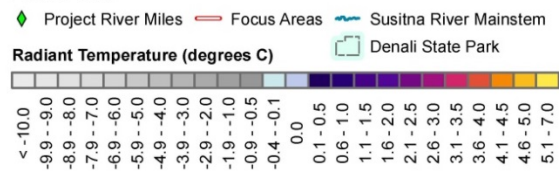
- ★ Proposed Watana Dam Site
- Proposed Watana Reservoir
- Map Pages (with page number)
- Rivers, Streams, and Lakes
- Proposed Study Area



Data Sources: See Map References

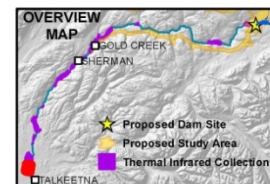
Overview Map

Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_OverviewMap_20140110.mxd

**LEGEND**

Increased Groundwater Activity (by date flown)

2013-Oct-23
 2013-Oct-24
 2013-Oct-31

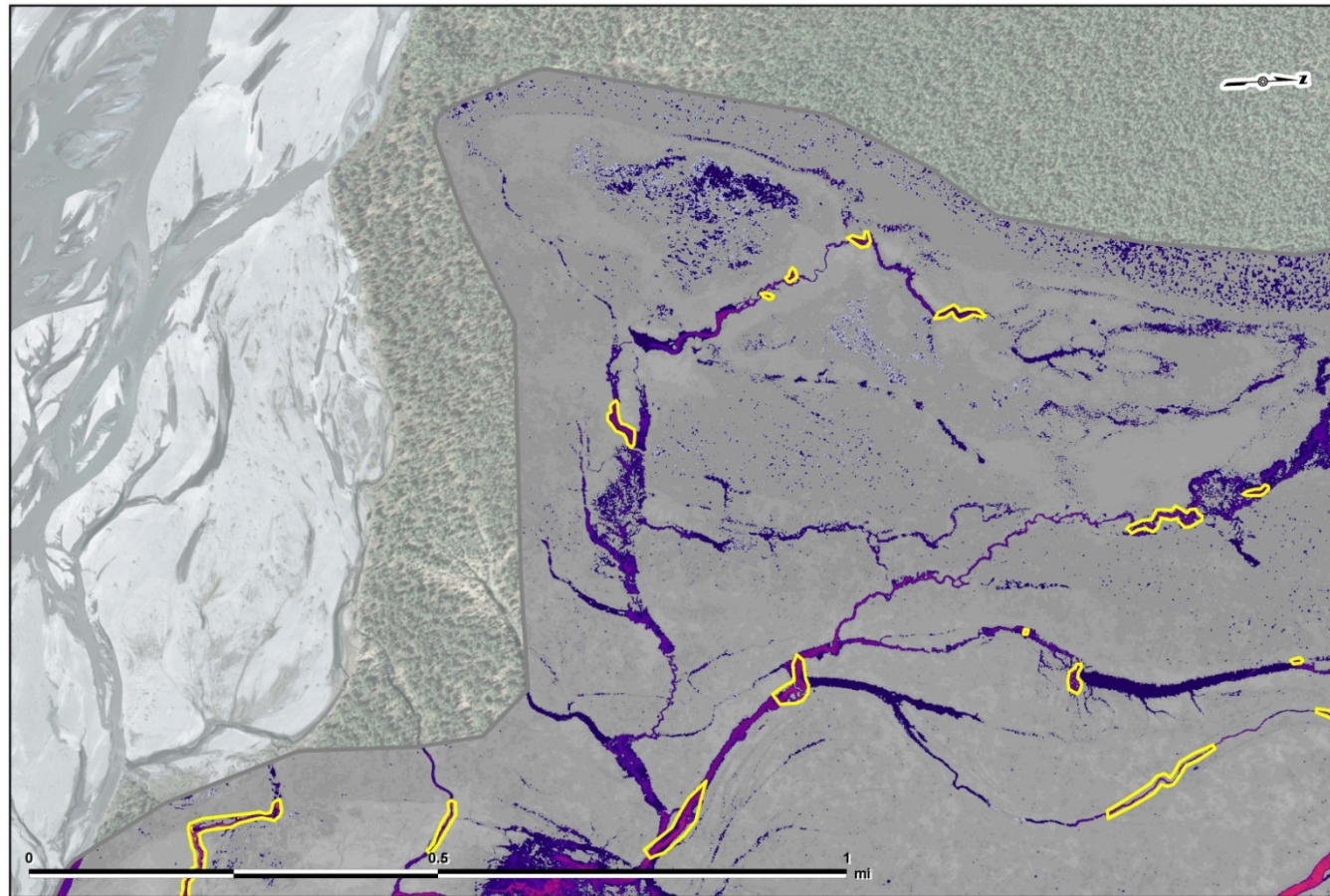
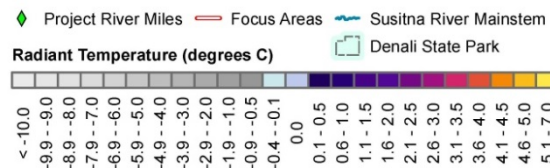
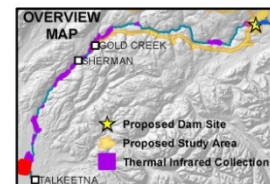
Focus Area 104/Whiskers Slough, Map 1 of 6

ALASKA ENERGY AUTHORITY

Data Sources: See Map References

Map Page 1 of 29

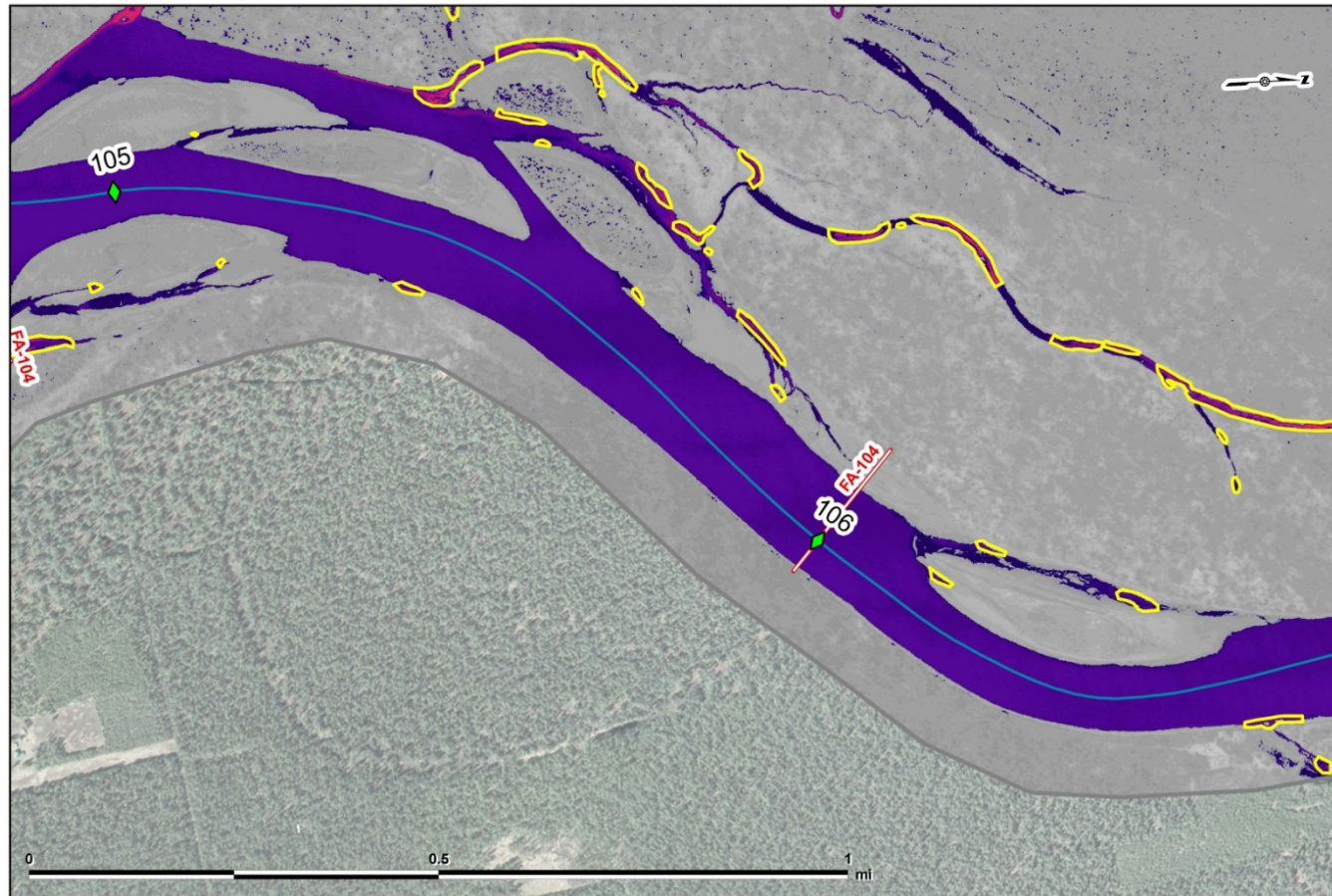
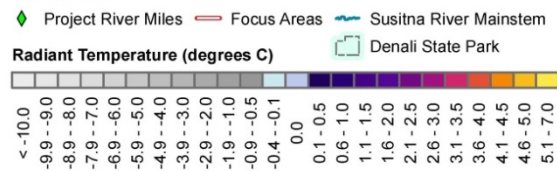
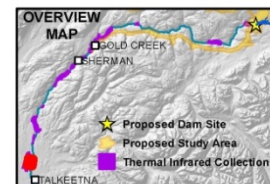
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 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Focus Area 104/Whiskers Slough, Map 2 of 6**

Data Sources: See Map References

Map Page 2 of 29

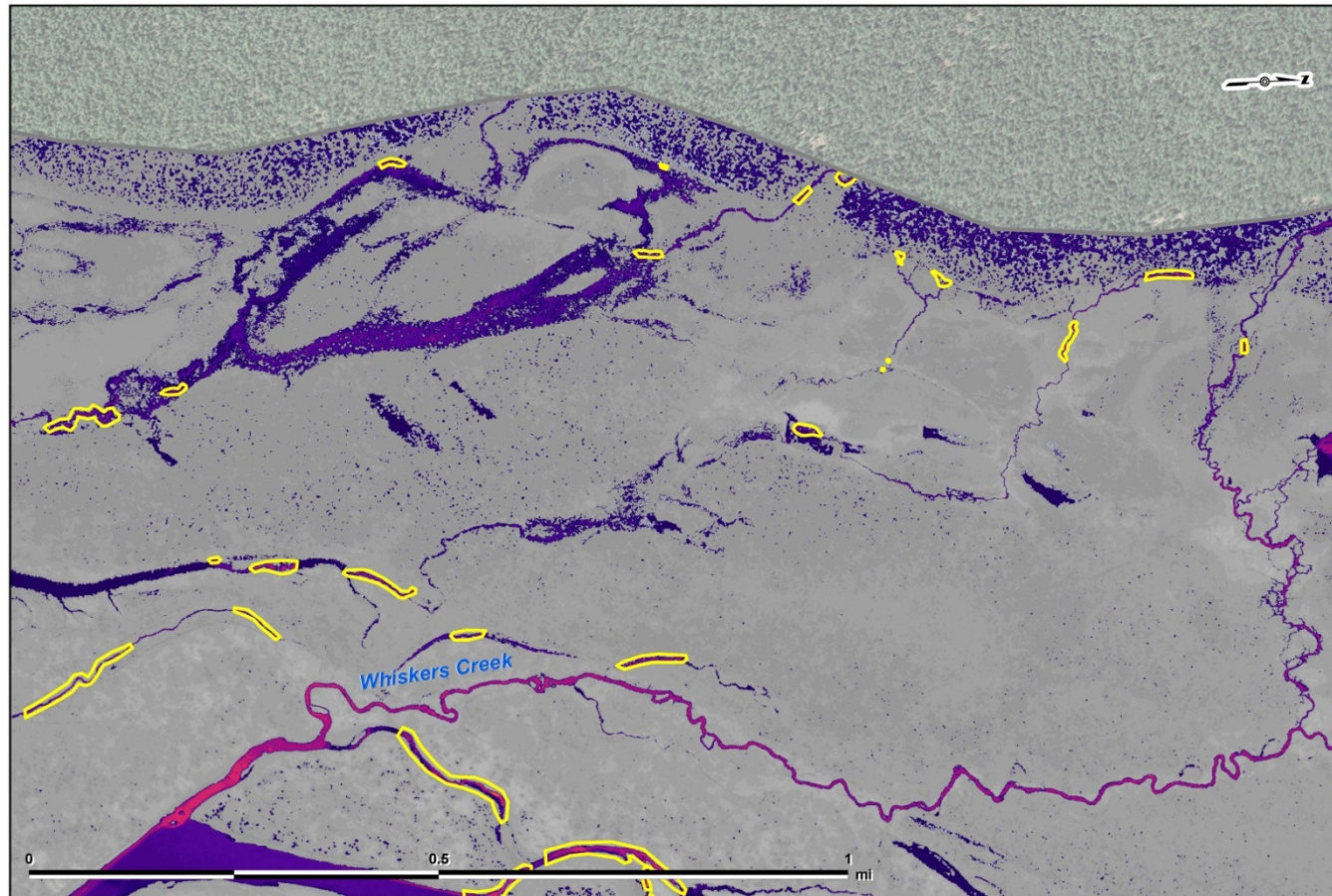
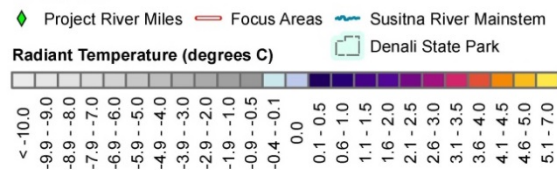
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 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

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Data Sources: See Map References

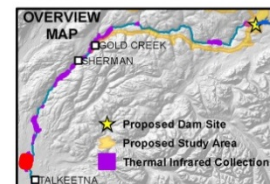
Map Page 3 of 29

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 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

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Increased Groundwater Activity (by date flown)

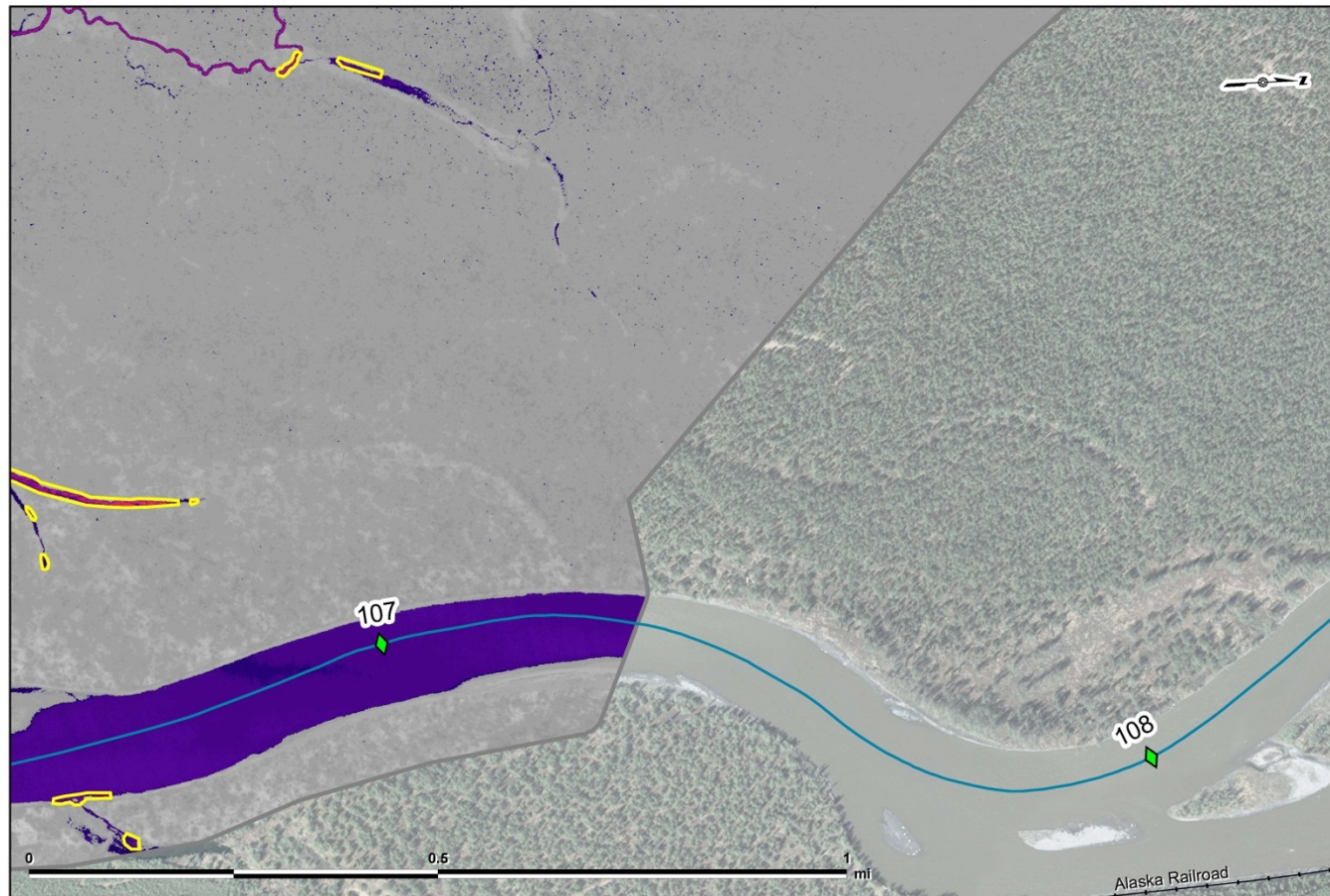
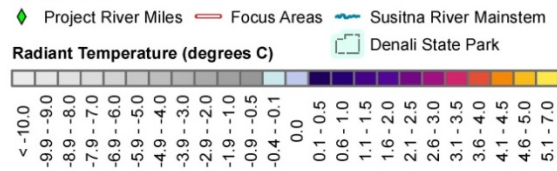
2013-Oct-23
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 2013-Oct-31

Focus Area 104/Whiskers Slough, Map 4 of 6

Data Sources: See Map References

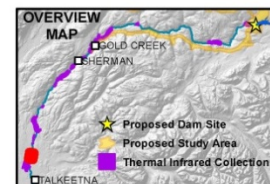
Map Page 4 of 29

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 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
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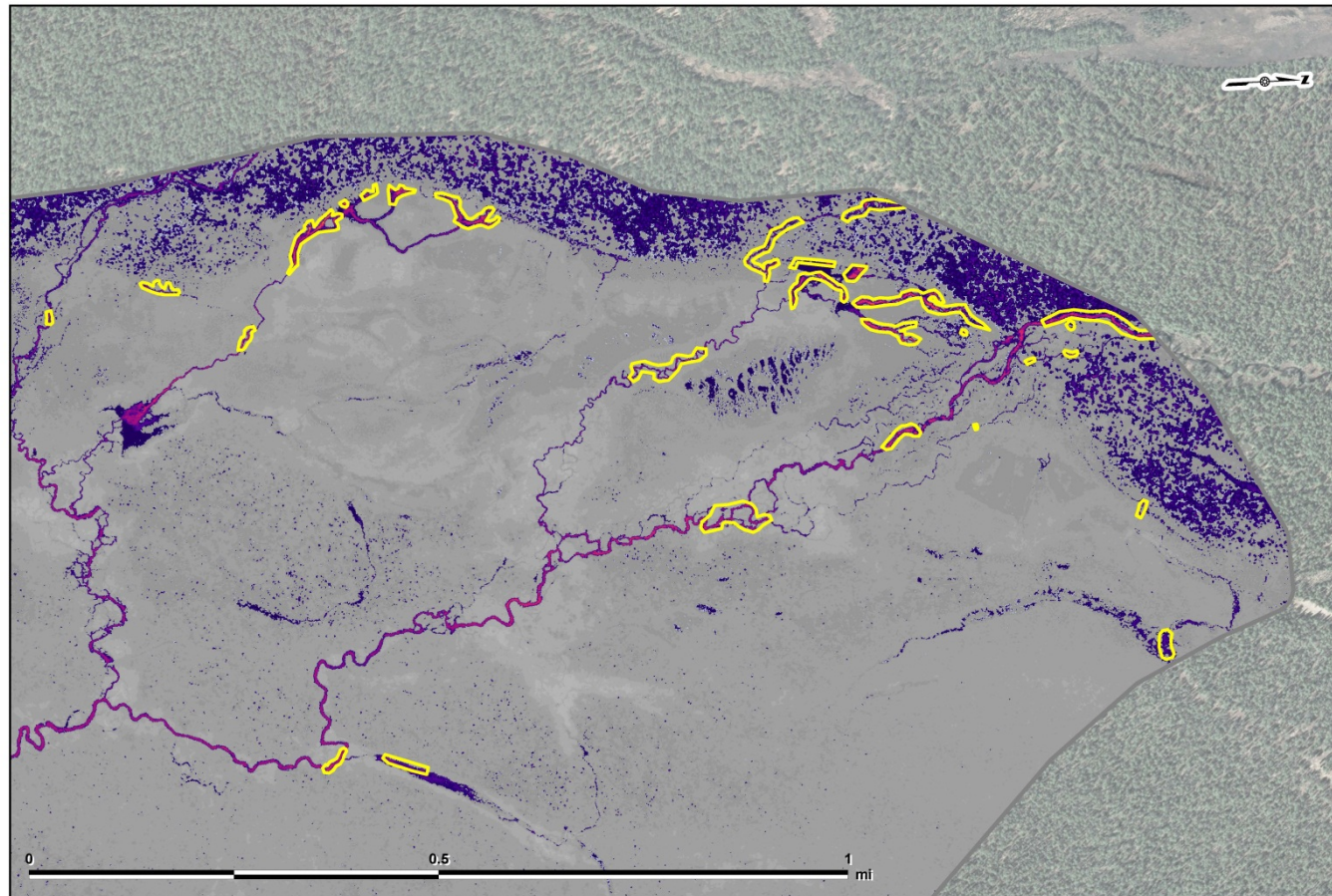
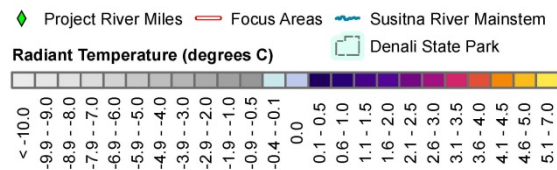
2013-Oct-23
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 2013-Oct-31

Focus Area 104/Whiskers Slough, Map 5 of 6

Data Sources: See Map References

Map Page 5 of 29

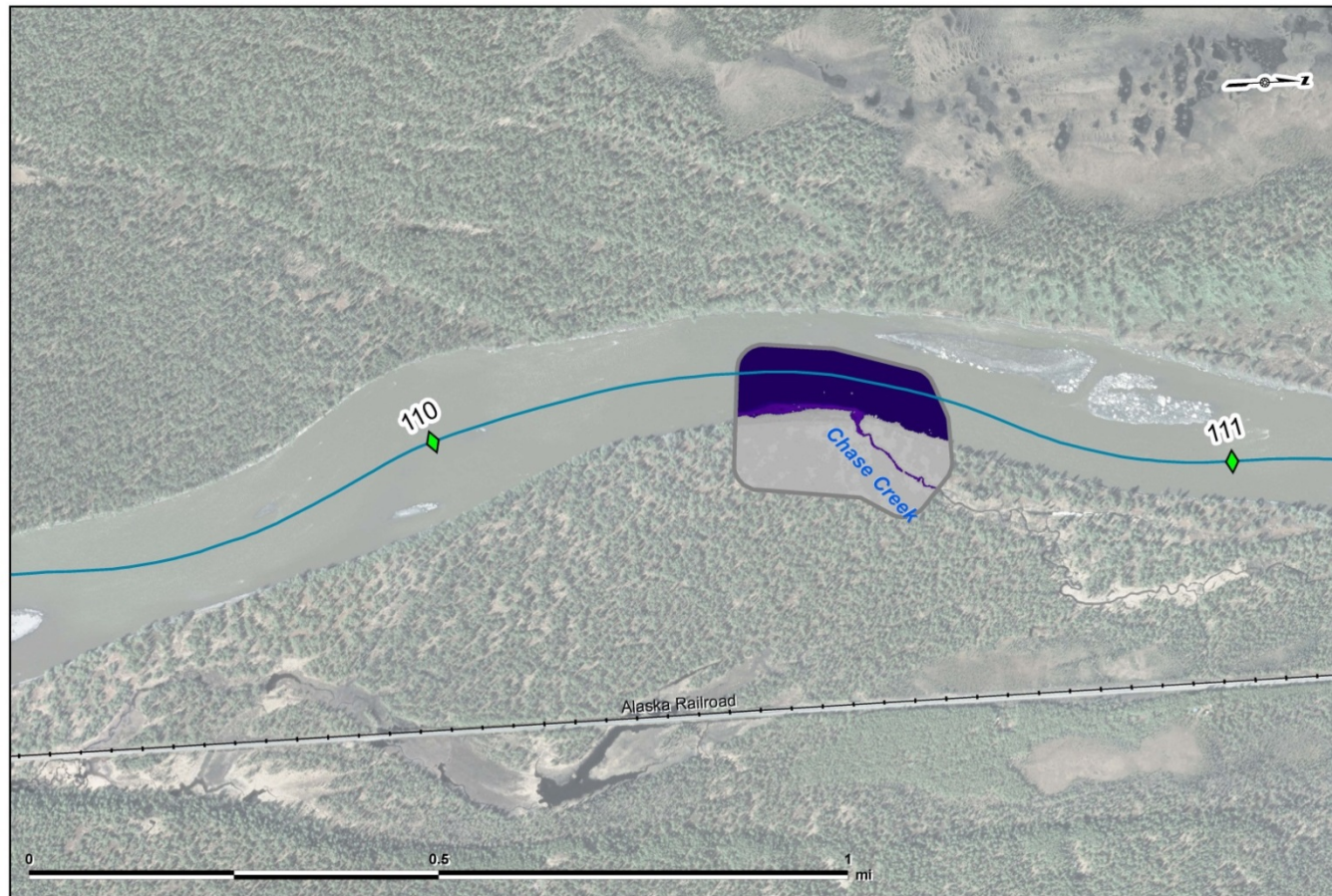
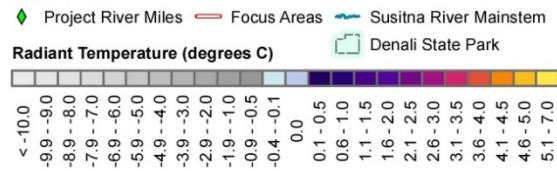
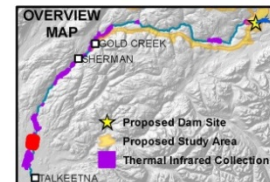
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 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Focus Area 104/Whiskers Slough, Map 6 of 6**

Data Sources: See Map References

Map Page 6 of 29

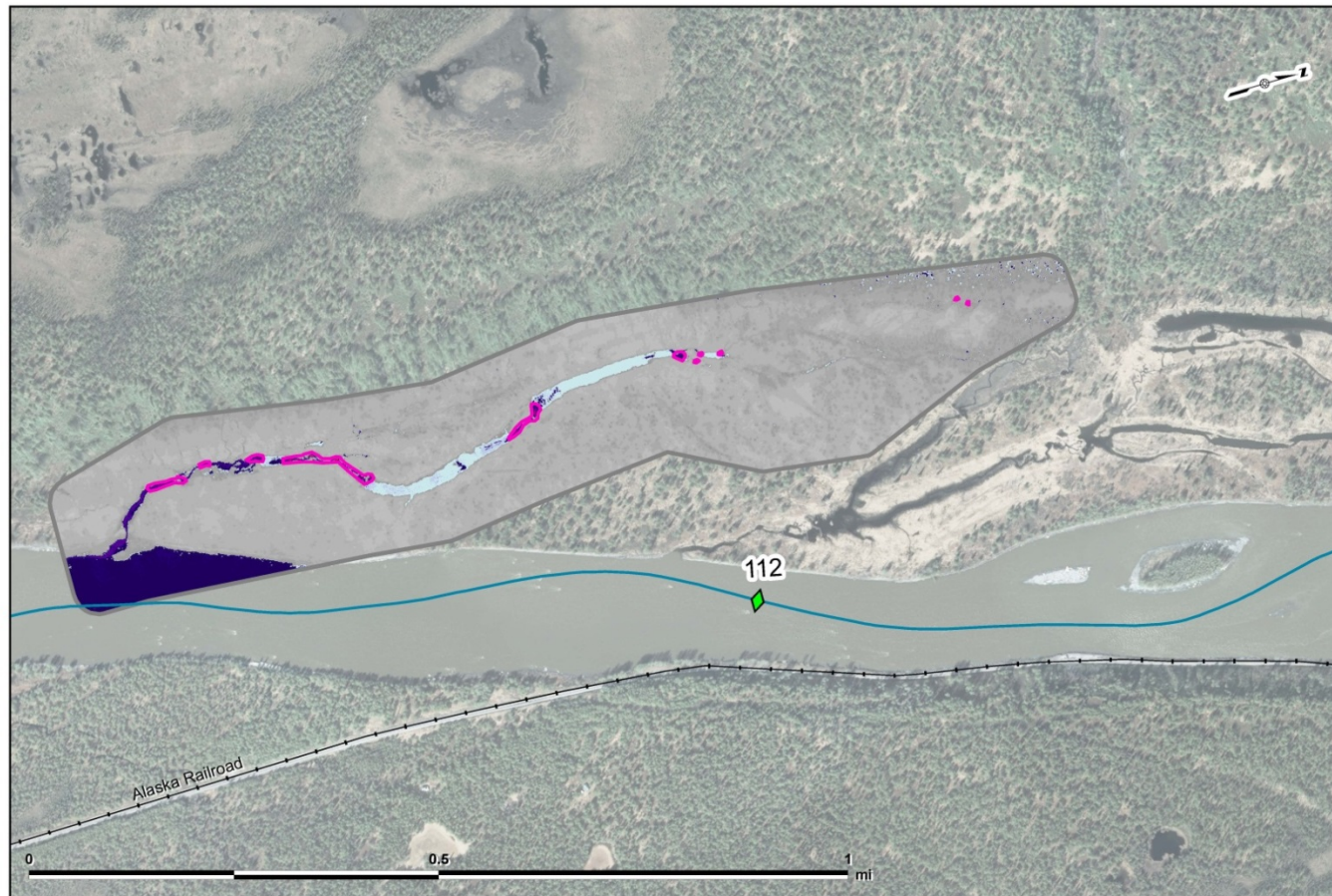
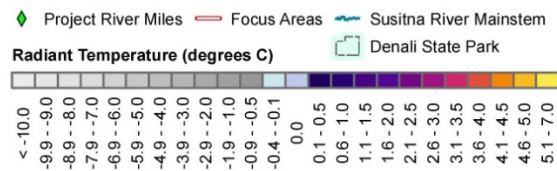
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 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Chase Creek Mouth**

Data Sources: See Map References

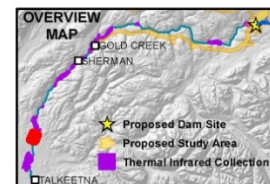
Map Page 7 of 29

Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

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Increased Groundwater Activity (by date flown)

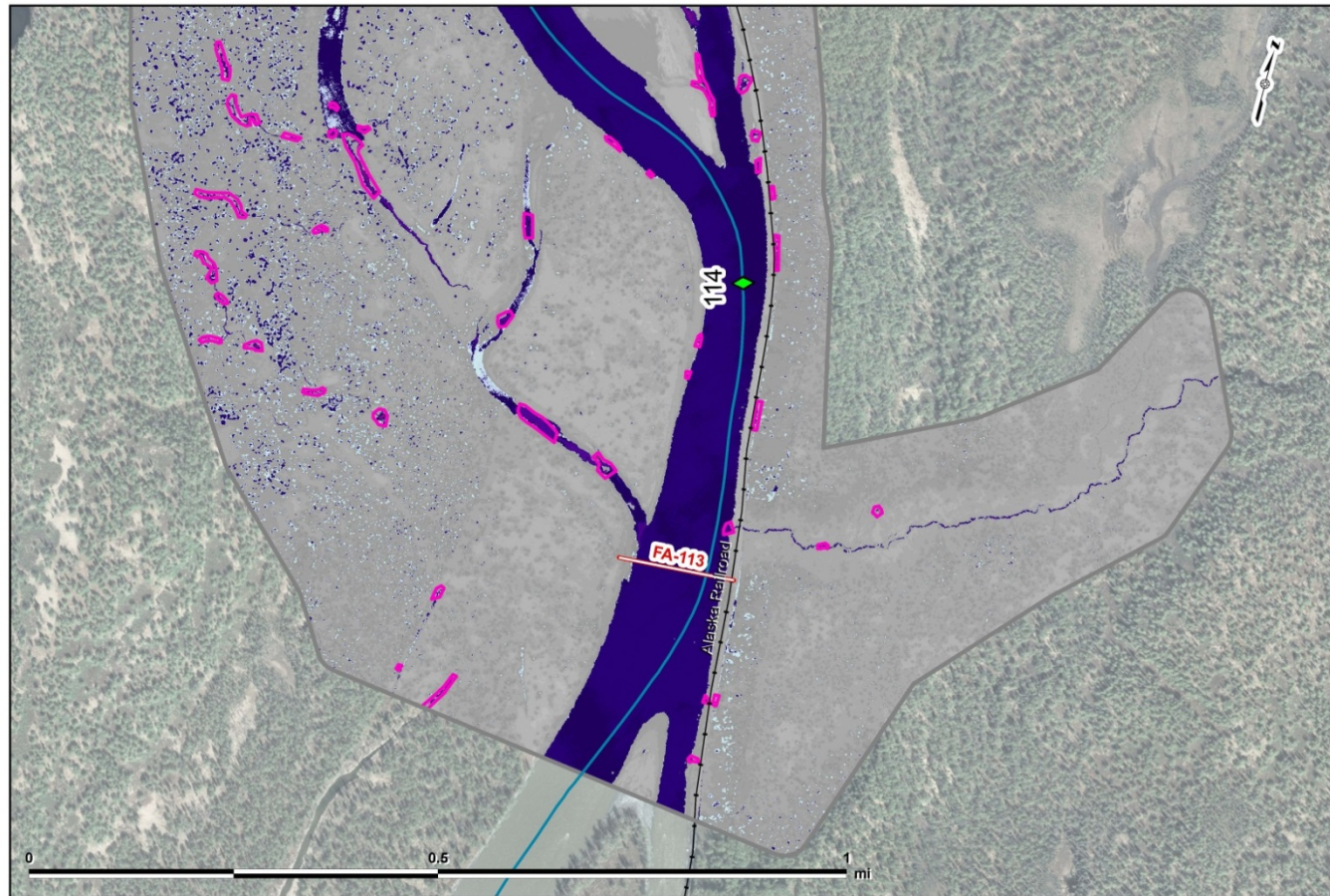
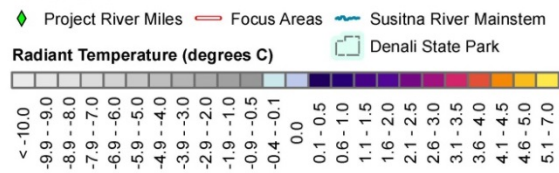
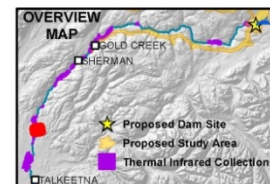
□ 2013-Oct-23
 □ 2013-Oct-24
 □ 2013-Oct-31

**Slough 5**

Data Sources: See Map References

Map Page 8 of 29

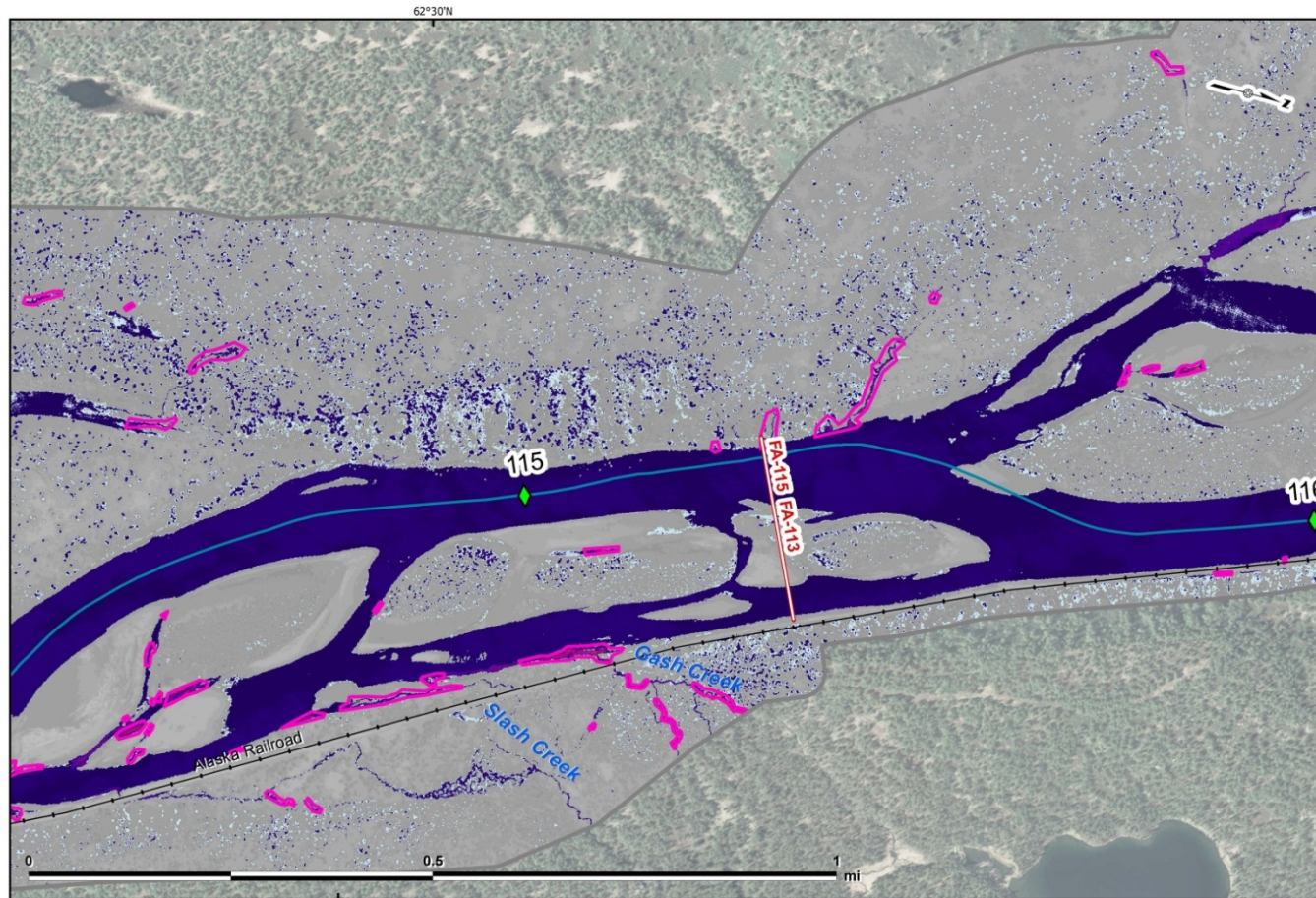
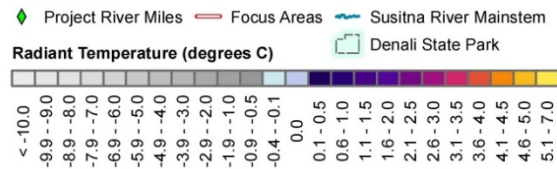
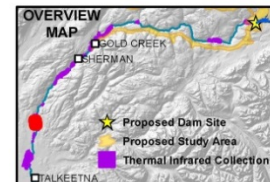
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 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Focus Areas 113 and 115, Map 1 of 3**

Data Sources: See Map References

Map Page 9 of 29

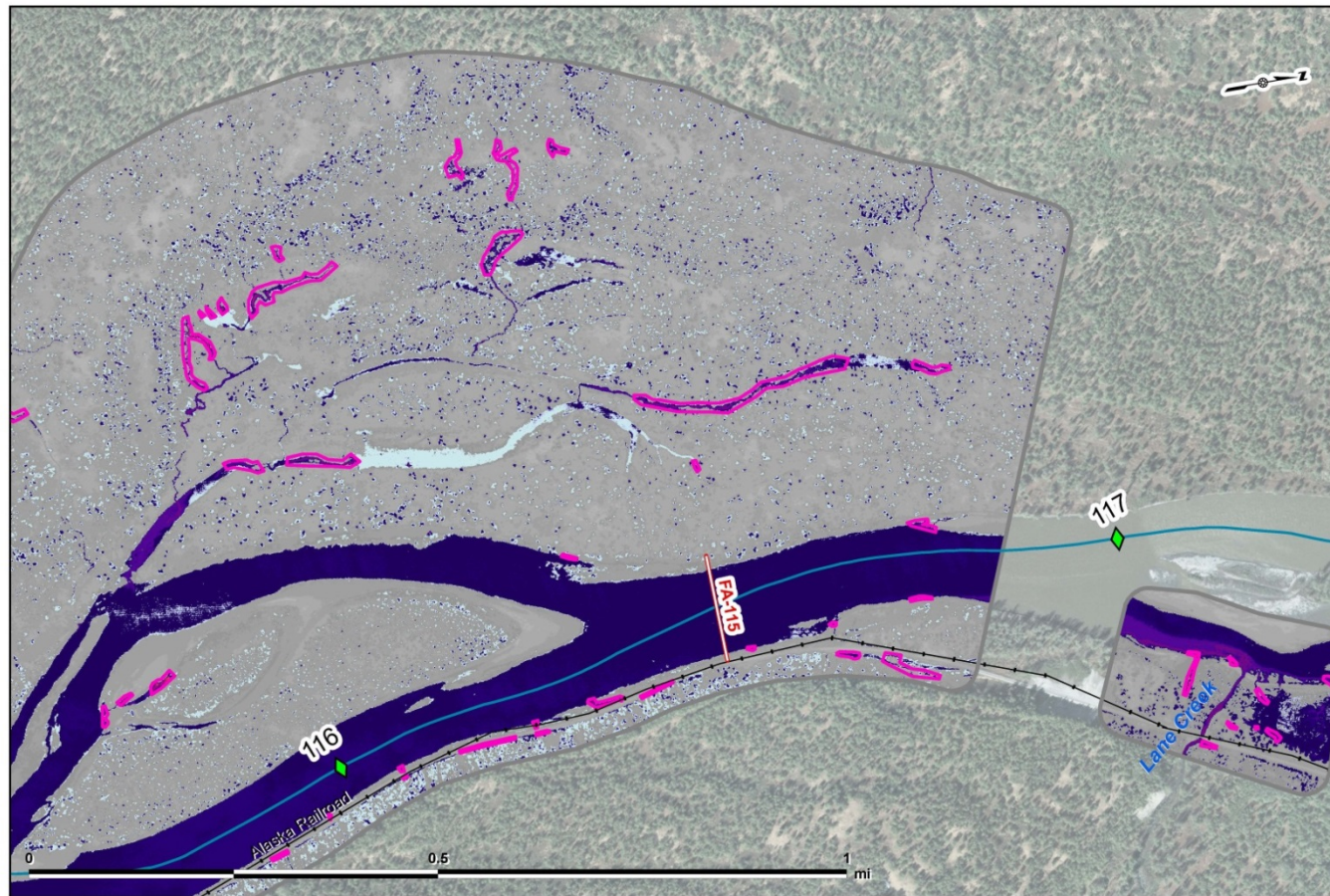
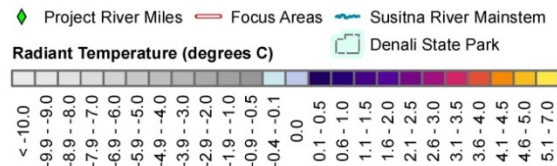
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 Map Author: URS Alaska, Cynthia Kirkham
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**LEGEND****Increased Groundwater Activity (by date flown)****Focus Areas 113 and 115, Map 2 of 3**

Data Sources: See Map References

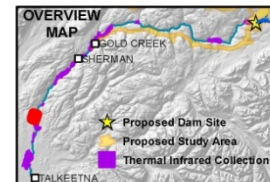
Map Page 10 of 29

Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND**

Increased Groundwater Activity (by date flown)

2013-Oct-23
 2013-Oct-24
 2013-Oct-31

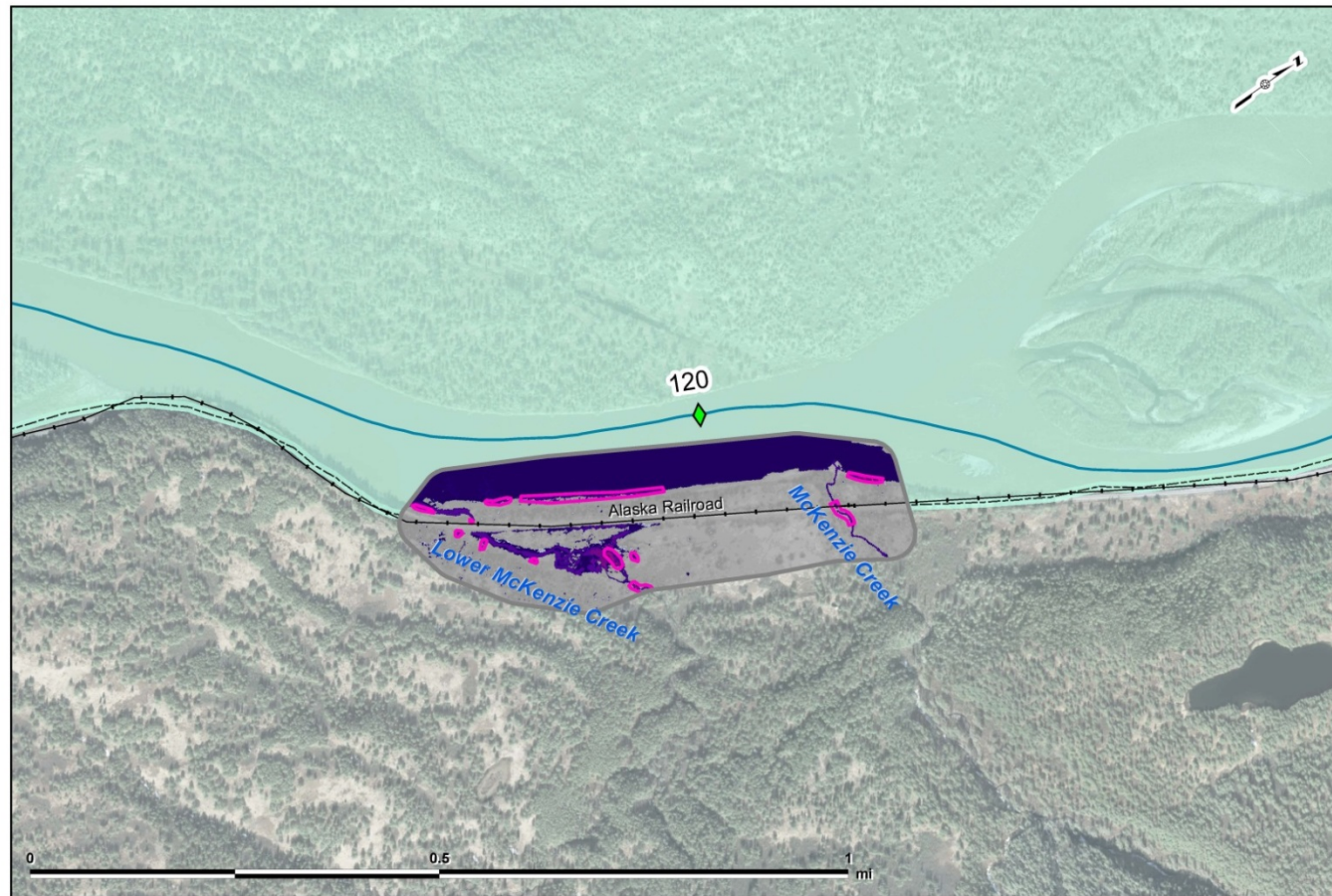
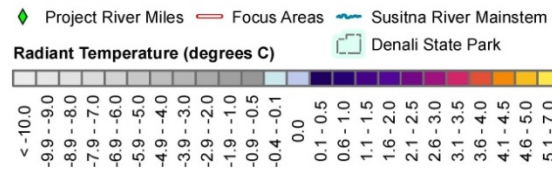
Focus Area 115 and Lane Creek Mouth, Map 3 of 3

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Data Sources: See Map References

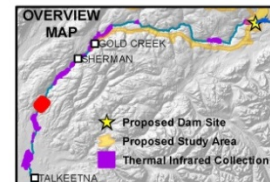
Map Page 11 of 29

Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

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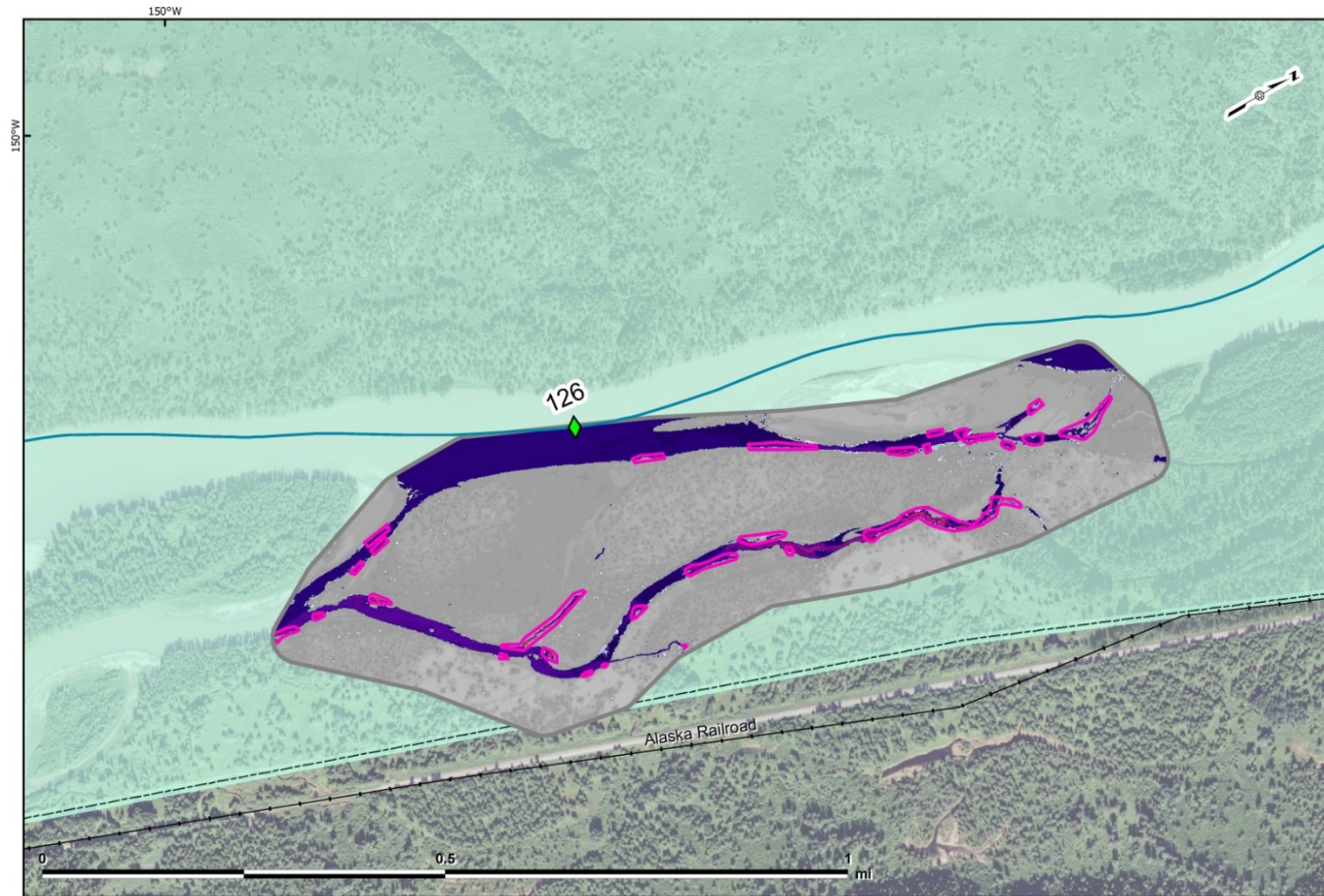
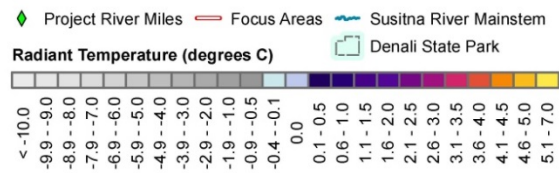
□ 2013-Oct-23
 □ 2013-Oct-24
 □ 2013-Oct-31

**Lower McKenzie Creek Mouth**

Data Sources: See Map References

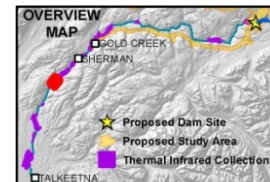
Map Page 12 of 29

Projection: Alaska Albers NAD 1983
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 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND**

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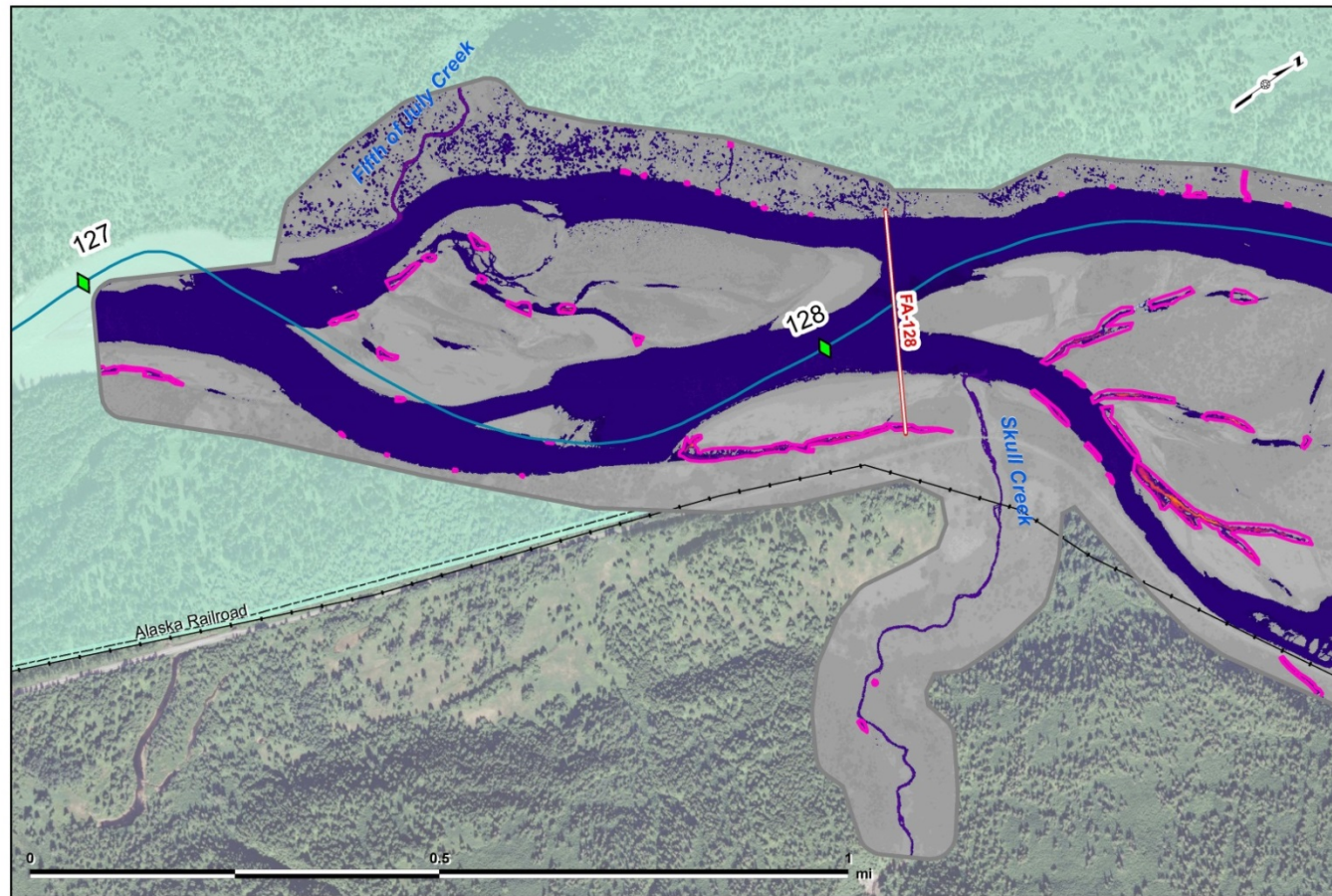
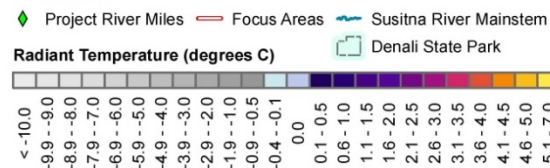
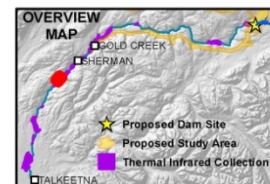
2013-Oct-23
 2013-Oct-24
 2013-Oct-31

**Slough 8B**

Data Sources: See Map References

Map Page 13 of 29

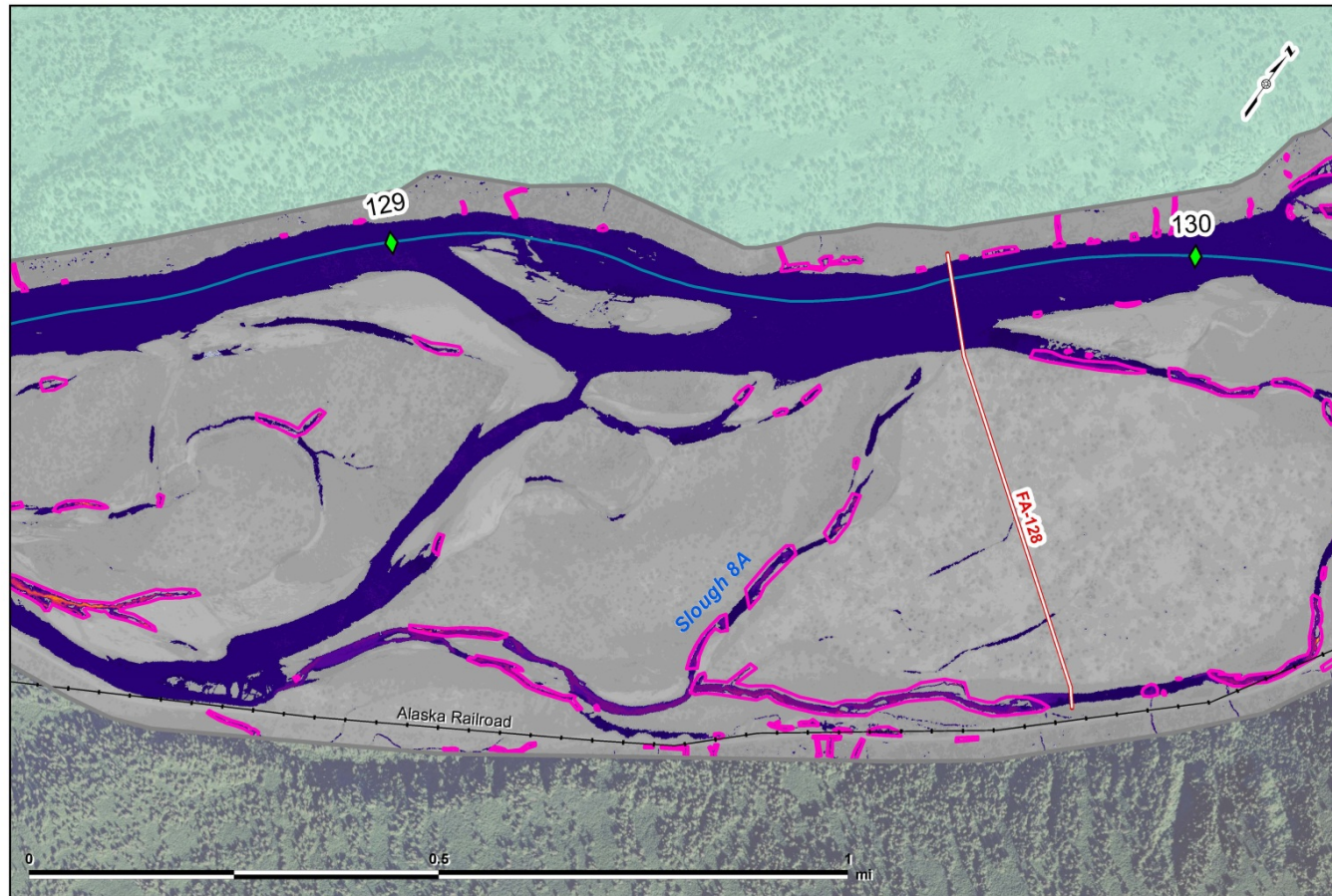
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 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Moose Slough, 5th of July Creek**

Data Sources: See Map References

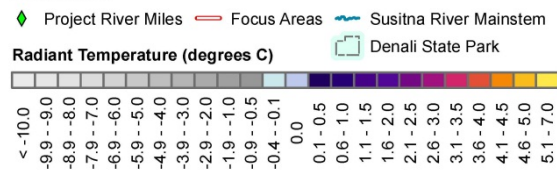
Map Page 14 of 29

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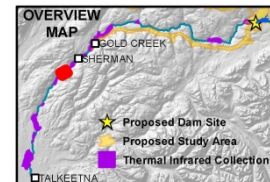
Focus Area 128/Skull Creek (Slough 8A), Map 1 of 2

LEGEND



Increased Groundwater Activity (by date flown)

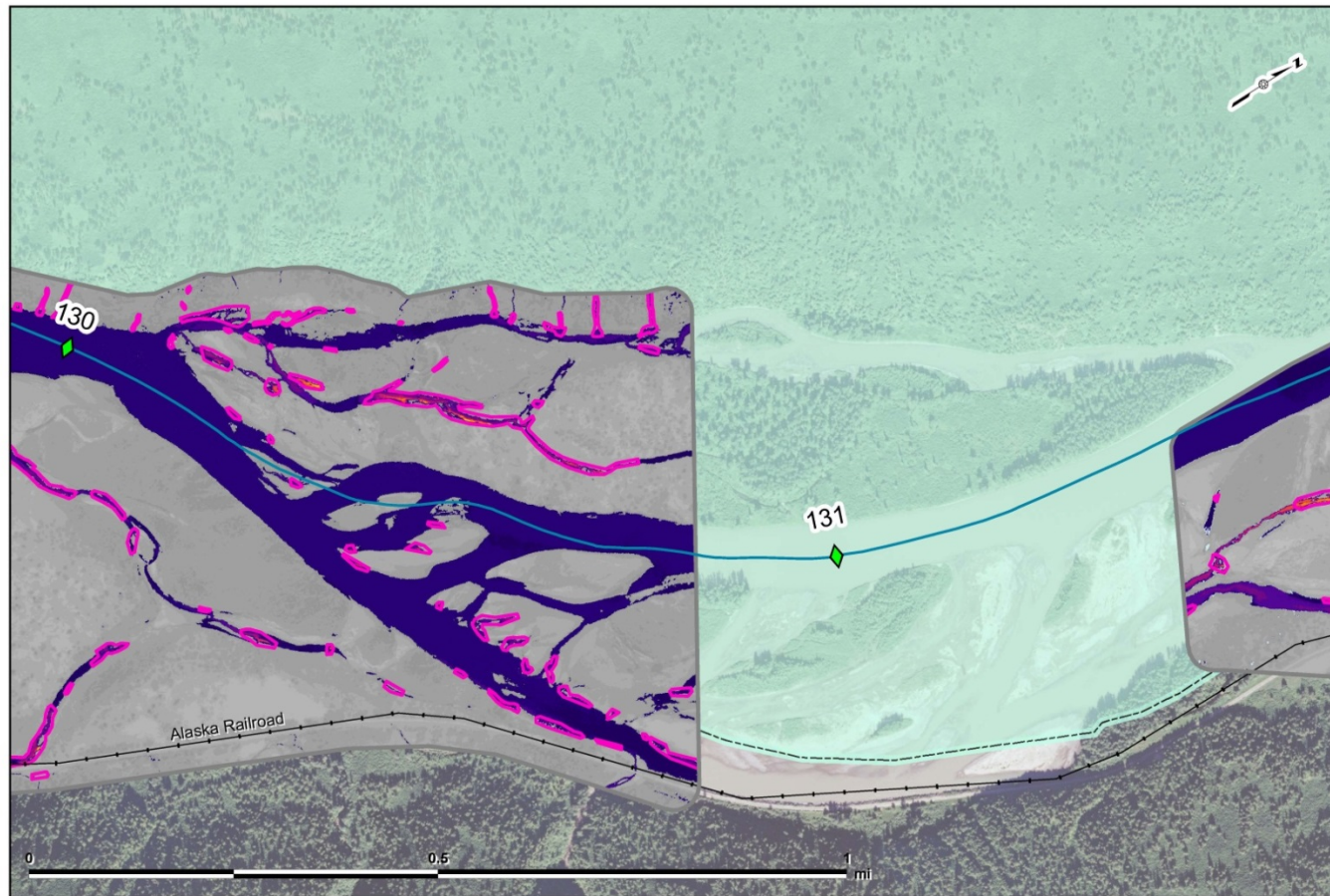
2013-Oct-23
 2013-Oct-24
 2013-Oct-31



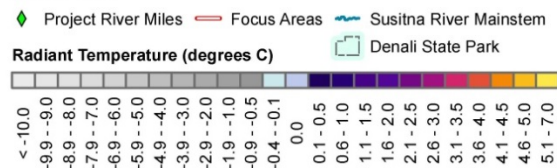
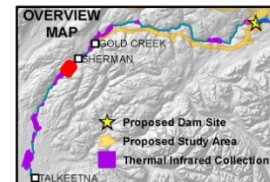
Data Sources: See Map References

Map Page 15 of 29

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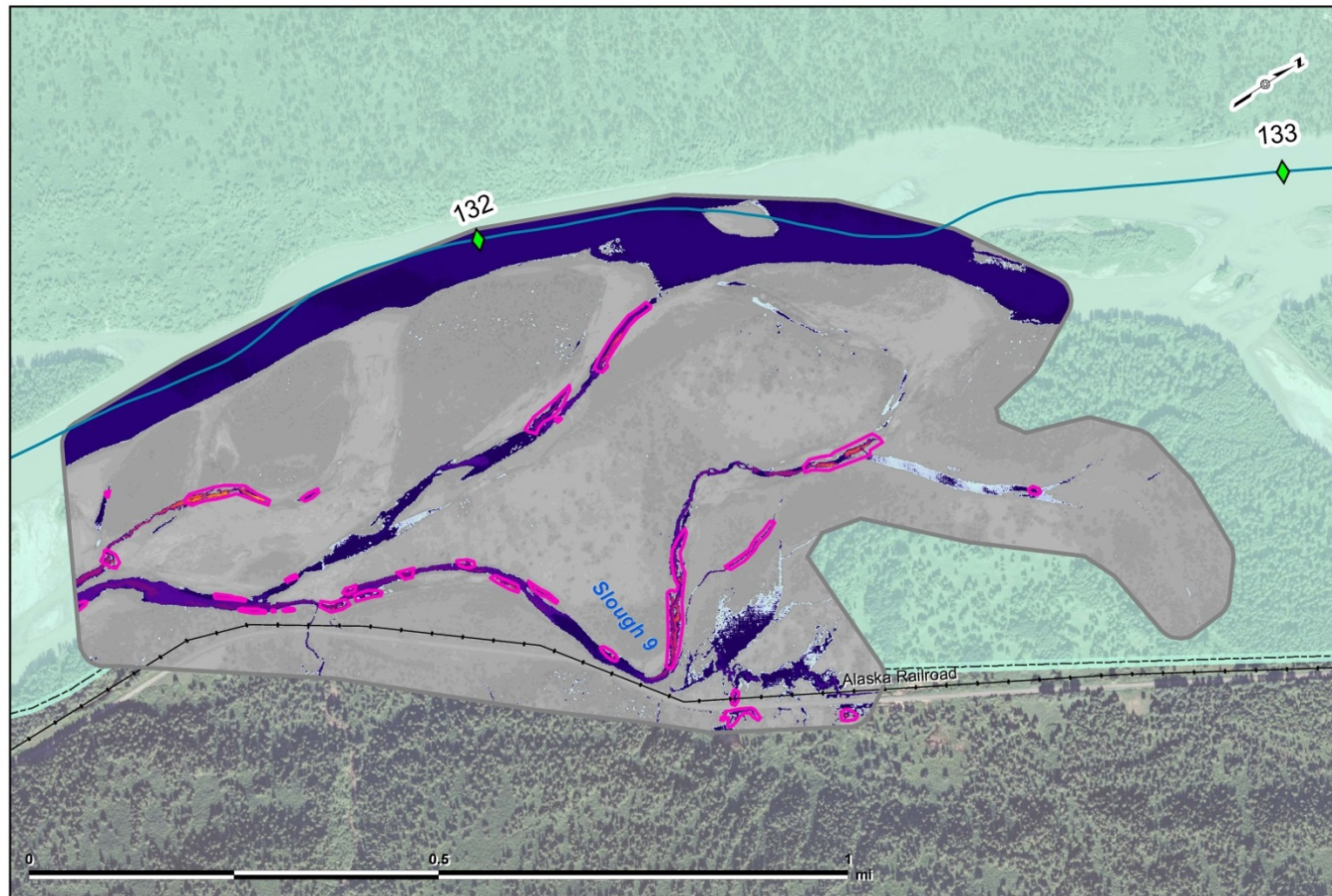
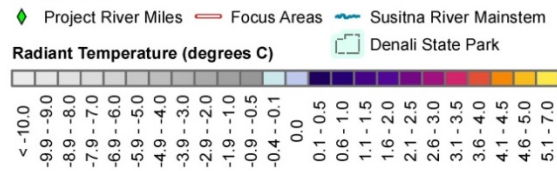
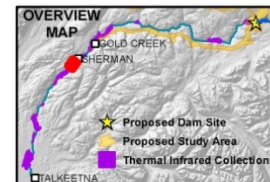
Focus Area 128/Skull Creek (Slough 8A), Map 2 of 2

LEGEND**Increased Groundwater Activity (by date flown)**

Data Sources: See Map References

Map Page 16 of 29

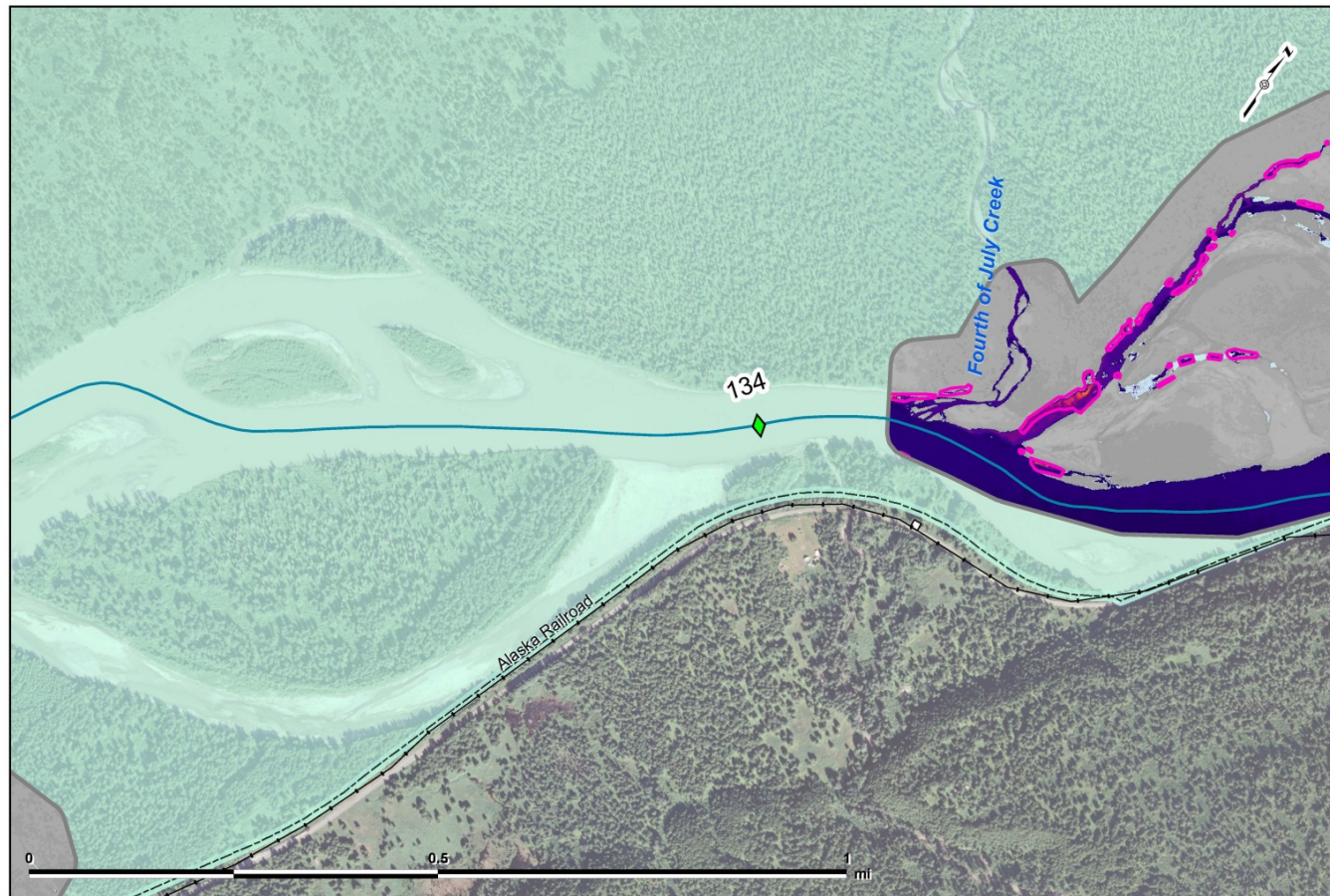
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 Map Author: URS Alaska, Cynthia Kirkham
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**LEGEND****Increased Groundwater Activity (by date flown)****Slough 9 and Slough 9B**

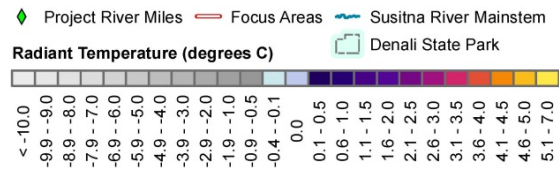
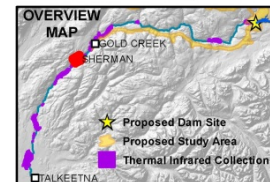
Data Sources: See Map References

Map Page 17 of 29

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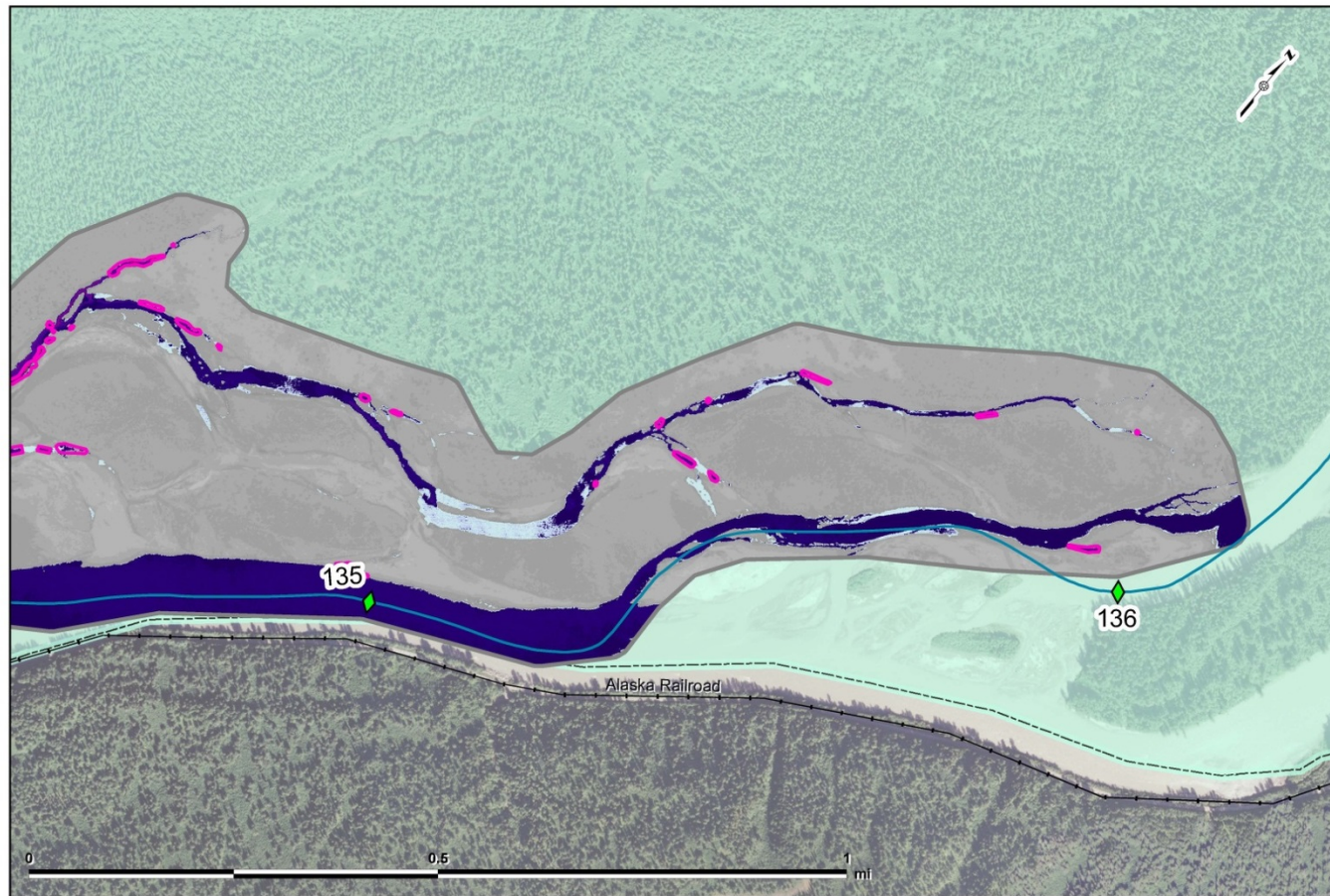
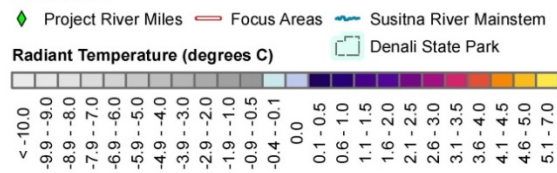
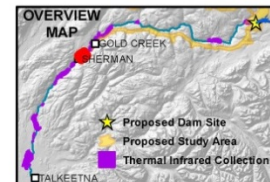
Side Channel 10A, 4th of July Creek, Map 1 of 2

LEGEND**Increased Groundwater Activity (by date flown)**

Data Sources: See Map References

Map Page 18 of 29

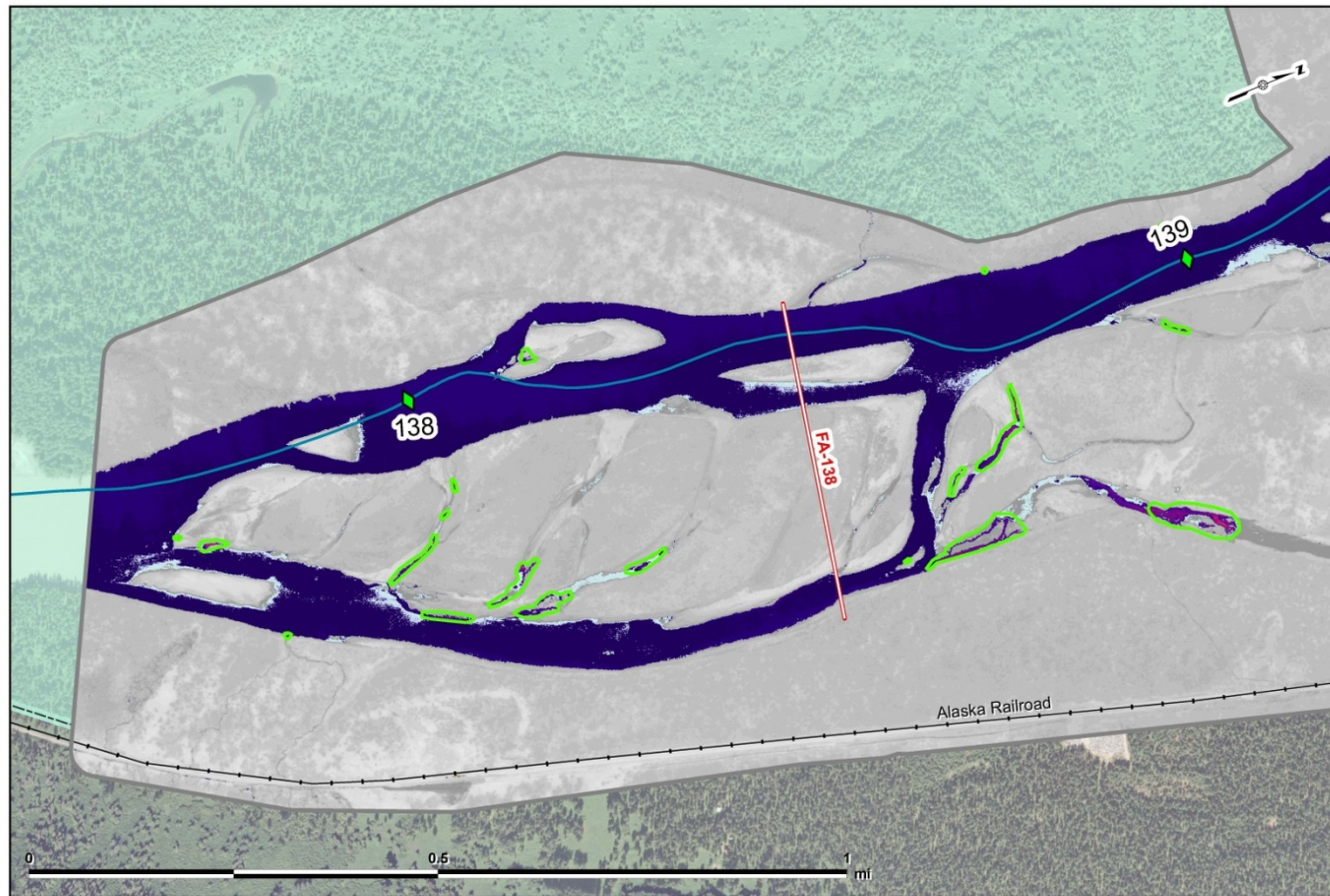
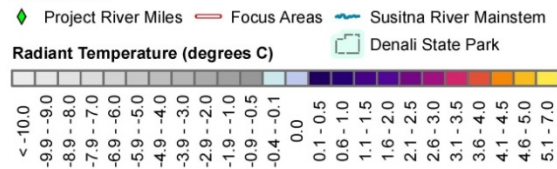
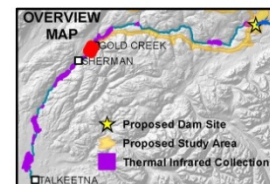
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 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Side Channel 10A, 4th of July Creek, Map 2 of 2**

Data Sources: See Map References

Map Page 19 of 29

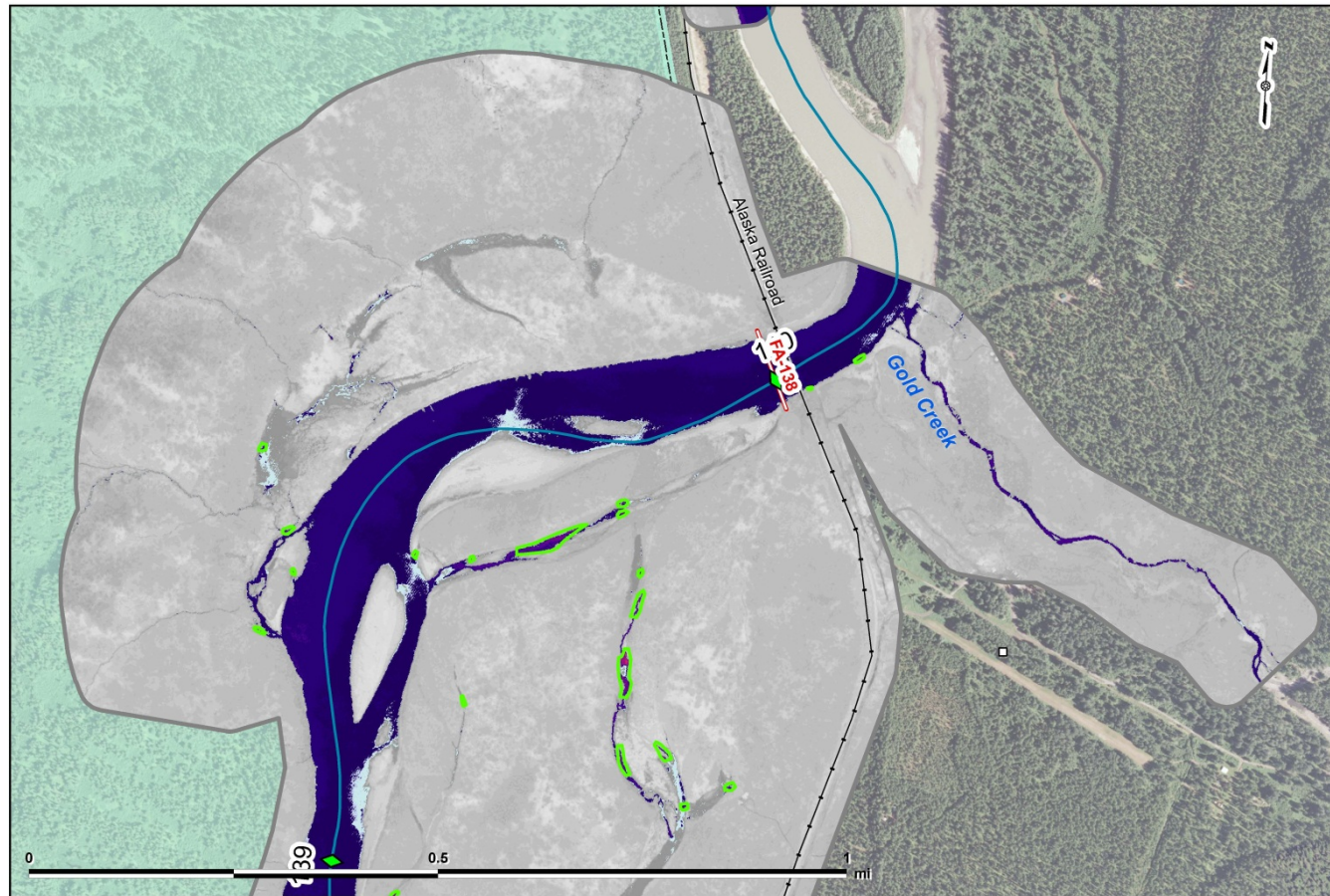
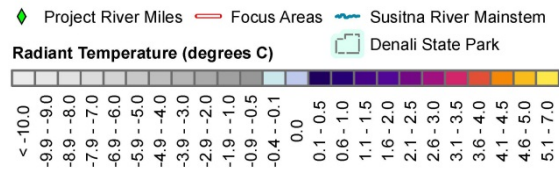
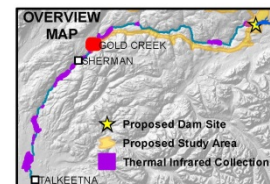
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 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Focus Area 138/Gold Creek, Map 1 of 2**

Data Sources: See Map References

Map Page 20 of 29

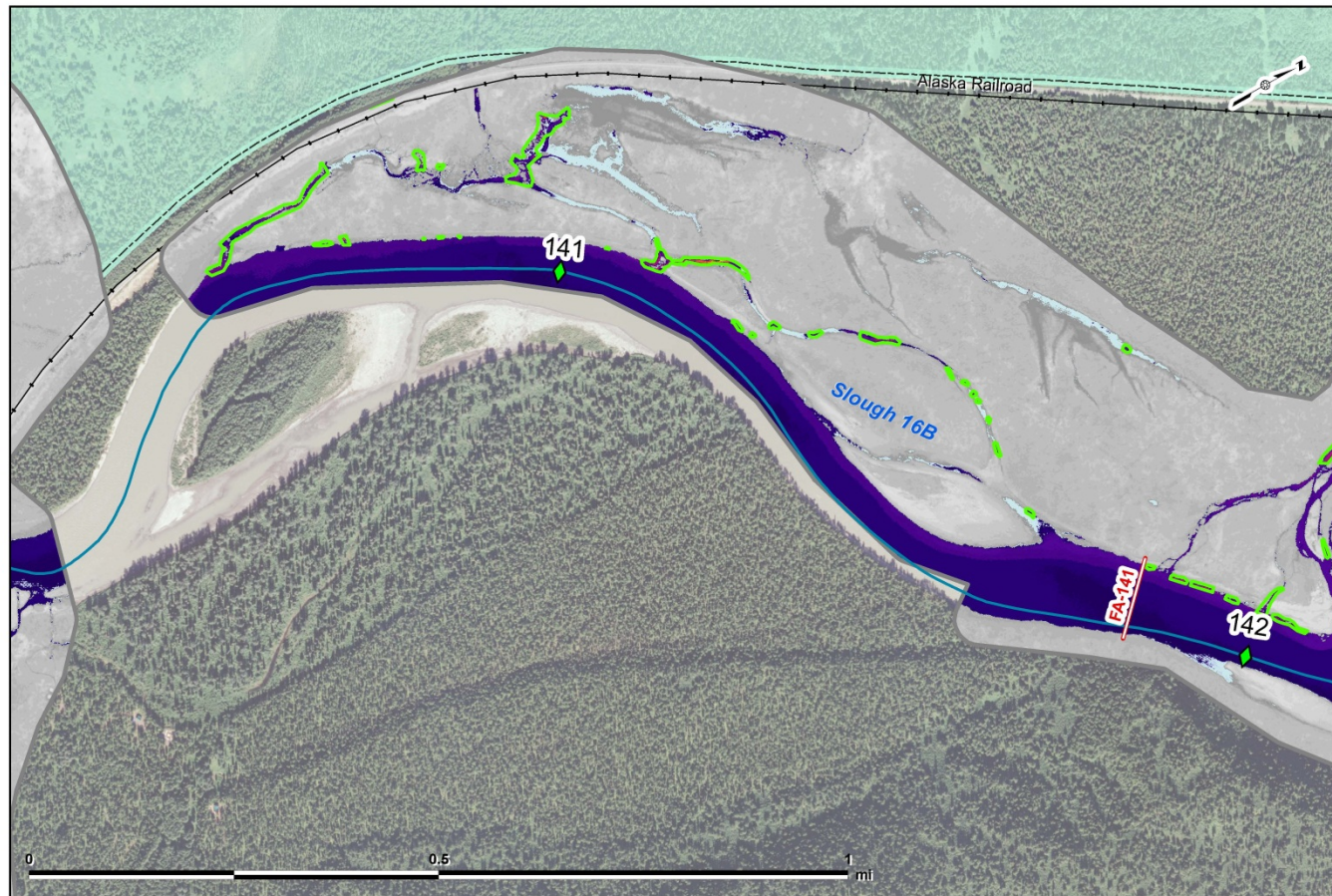
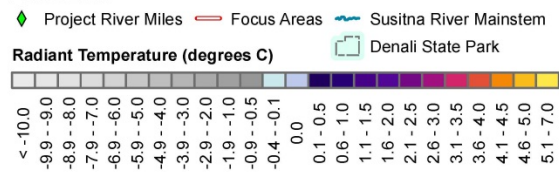
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**LEGEND****Increased Groundwater Activity (by date flown)****Focus Area 138/Gold Creek, Map 2 of 2**

Data Sources: See Map References

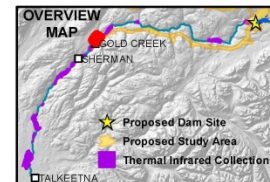
Map Page 21 of 29

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**LEGEND**

Increased Groundwater Activity (by date flown)

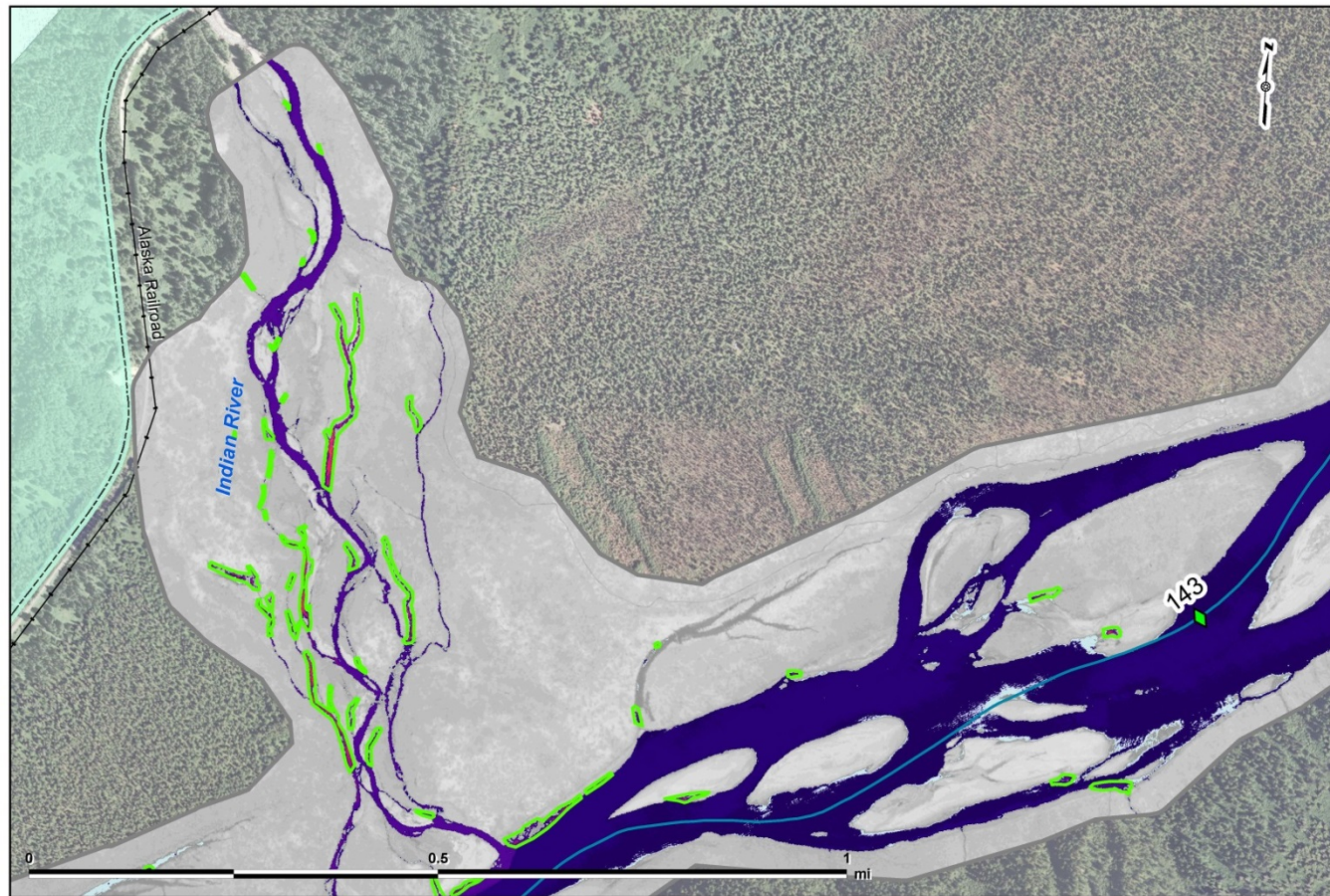
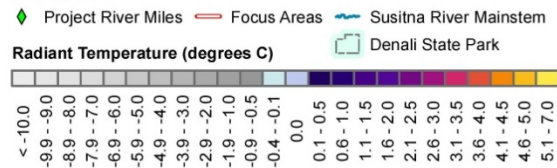
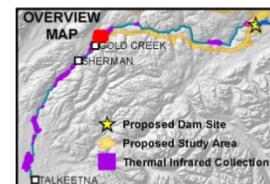
2013-Oct-23
 2013-Oct-24
 2013-Oct-31

**Slough 15**

Data Sources: See Map References

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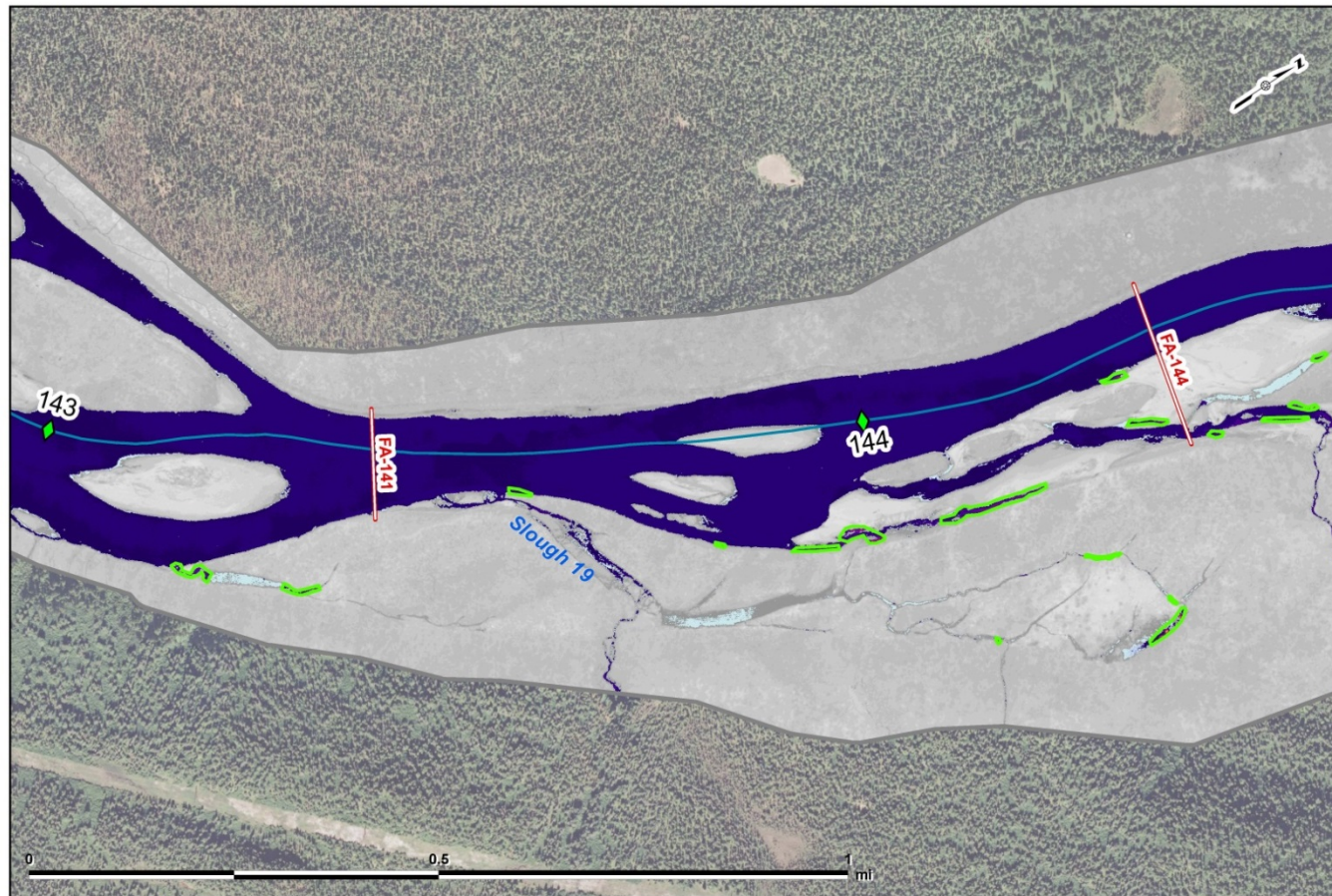
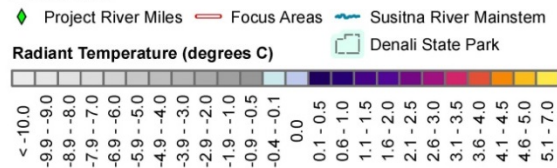
Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Focus Areas 141 and 144, Map 1 of 3**

Data Sources: See Map References

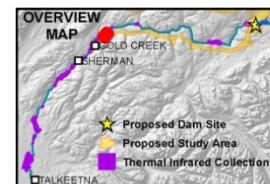
Map Page 23 of 29

Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND**

Increased Groundwater Activity (by date flown)

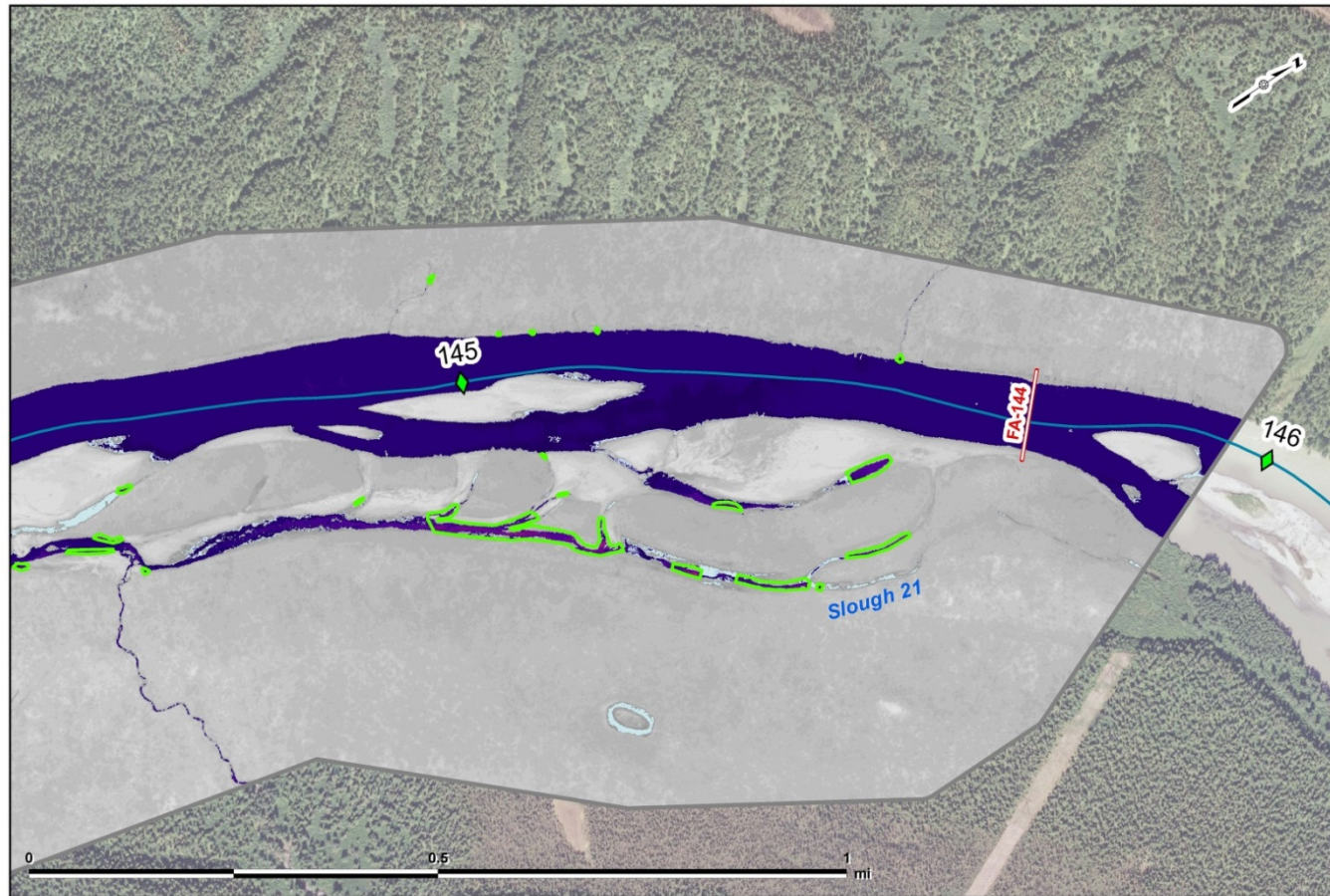
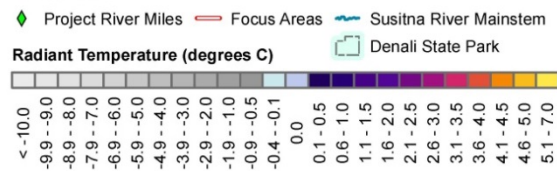
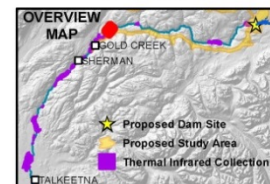
2013-Oct-23
 2013-Oct-24
 2013-Oct-31

Focus Areas 141 and 144, Map 2 of 3

Data Sources: See Map References

Map Page 24 of 29

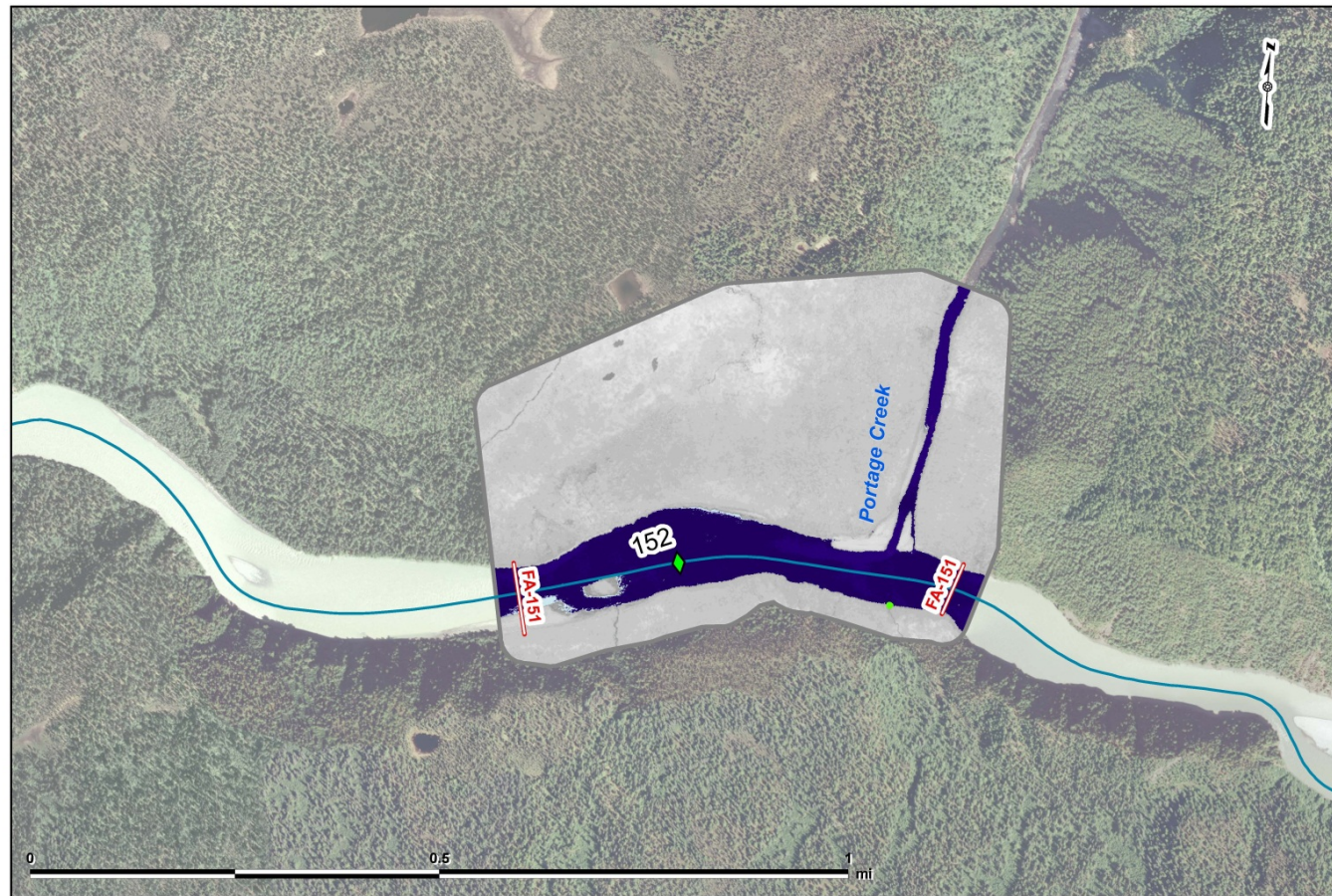
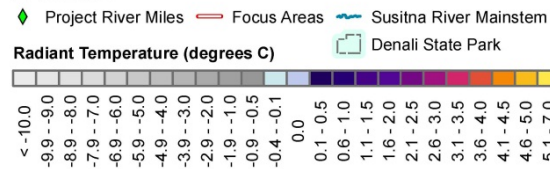
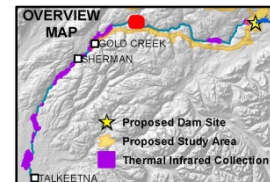
Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Focus Areas 141 and 144, Map 3 of 3**

Data Sources: See Map References

Map Page 25 of 29

Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

**LEGEND****Increased Groundwater Activity (by date flown)****Focus Area 151**

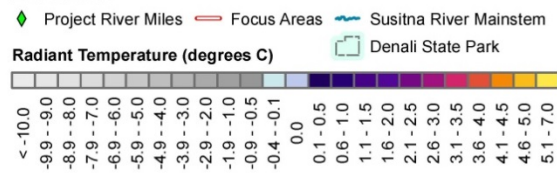
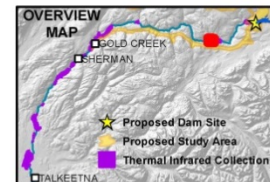
Data Sources: See Map References

Map Page 26 of 29

Projection: Alaska Albers NAD 1983
Date Created: 1/10/2014
Map Author: URS Alaska, Cynthia Kirkham
File: ThermalDataOctober2013_20140110.mxd



Focus Area 173, Map 1 of 2

LEGEND**Increased Groundwater Activity (by date flown)**

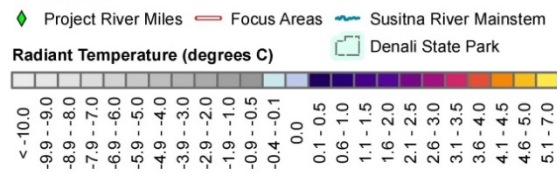
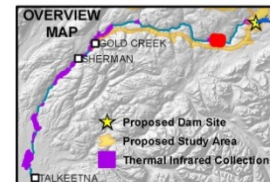
Data Sources: See Map References

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Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd



Focus Area 173, Map 2 of 2

LEGEND**Increased Groundwater Activity (by date flown)**

Data Sources: See Map References

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Projection: Alaska Albers NAD 1983
 Date Created: 1/10/2014
 Map Author: URS Alaska, Cynthia Kirkham
 File: ThermalDataOctober2013_20140110.mxd

