

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

**Characterization and Mapping of Aquatic Habitats  
Study 9.9**

**Revised Map Book for 2012 Remote Line Mapping**

Prepared for

Alaska Energy Authority



**SUSITNA-WATANA HYDRO**

*Clean, reliable energy for the next 100 years.*

Prepared by

R2 Resource Consultants, Inc.

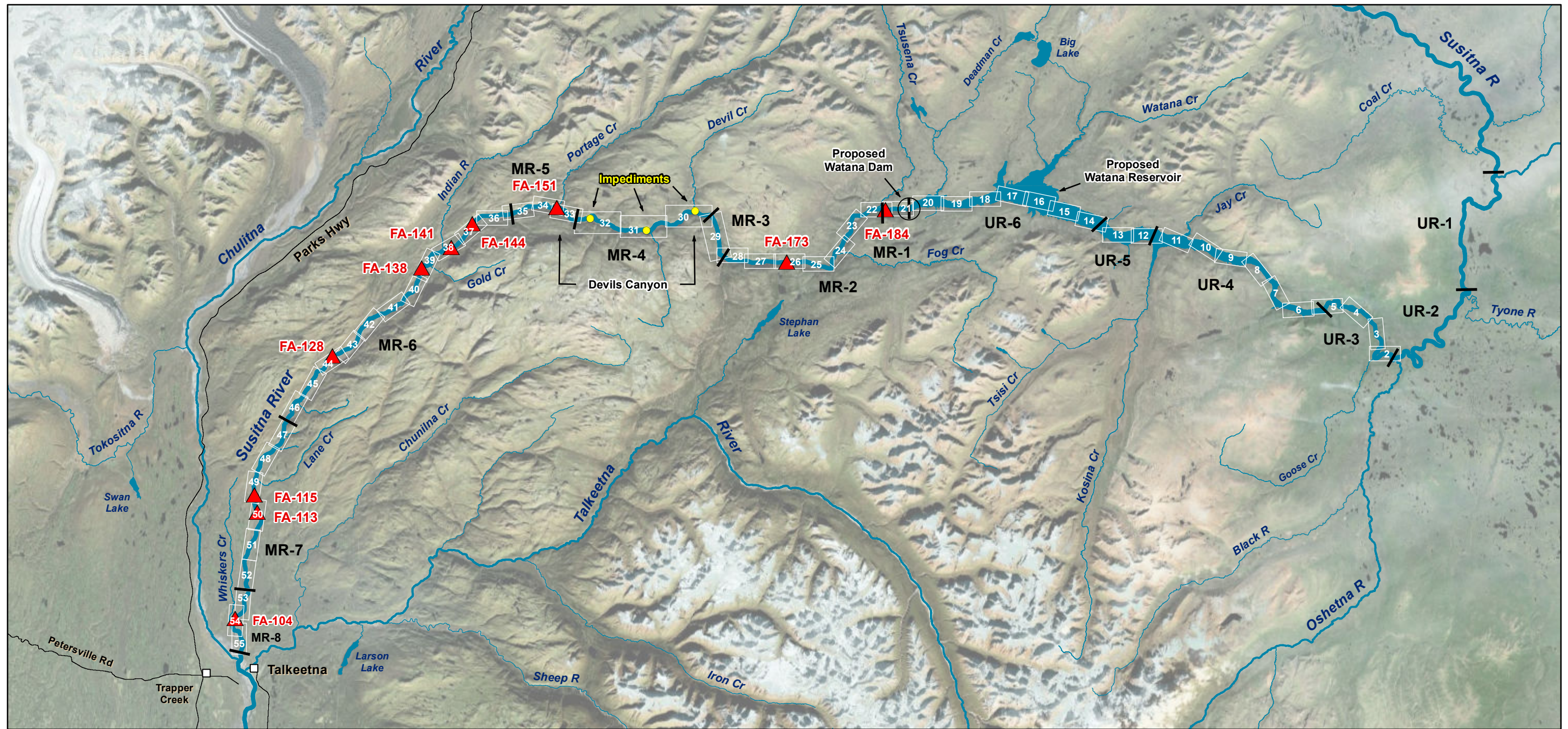
November 2014

## Introduction

Since ground-based mapping of 235 miles of river was impractical, remote mapping was combined with ground-based data collection in representative proportions of river habitats to form a habitat characterization of the river (ISR Study 9.9 Section 4.1). This combination of methods allowed for optimum spatial coverage from remote imagery in concert with efficient collection of detailed data at selected habitats by ground-based crews. For remote line mapping all main channel habitats were identified to Level 4 (mesohabitat), although remote imagery was challenging for distinguishing run and glides as well as pools. Off-channel habitat was classified to Level 3 (macrohabitat).

This map book represents an update to the version published on June 3, 2014 with the Study 9.9 Initial Study Report and the errata issued on November 15, 2014. In the previous versions of this map book, some macrohabitat units were not easily visible due to overlapping mesohabitat layers, in particular within main channel macrohabitats (main channel, split main channel, multiple-split main channel and side channel). The maps presented herein were updated to be comprehensive of all macrohabitat and mesohabitat line identifications available in the 2012 Remote Line Mapping ArcGIS shapefile. Habitat spelling and naming conventions were updated to reflect 2014 usage. The original hierarchical habitat category structure has been preserved; the changes recommended by the FERC Study Plan Determination of April 1, 2013 (reclassifying Clearwater Plume, Backwater and Beaver Complex habitat from L3 macrohabitat to L4 mesohabitat) are noted in the legend of each map. Tributaries, named and unnamed, are now represented by a point with an associated tributary name as annotation. This map book should be considered a full replacement for previous versions and represents the final product for the 2012 remote line habitat mapping effort.

The ArcGIS shapefile “ISR\_9\_9\_AQHAB\_RemoteLineMapping\_2012.shp” used to generate these maps can be located at: [http://gis.suhydro.org/isr\\_mtg/](http://gis.suhydro.org/isr_mtg/)



- Legend**
- ▲ Instream Flow Focus Area
  - Geomorphic Reach
  - Impediment
  - Remote Line Mapping Map Extent and Number

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

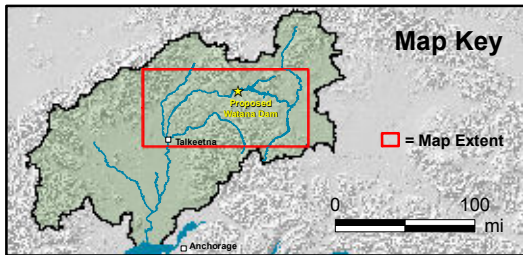
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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Map 1 of 55



Orthophoto Source: 2010 MDA Information Systems, USGS, NASA



**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- - - Split Main Channel
- · · · · Multiple Split Main Channel
- Side Channel
- Side Slough

— Upland Slough

- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

**Mesohabitat (2012)**

- · · · · Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

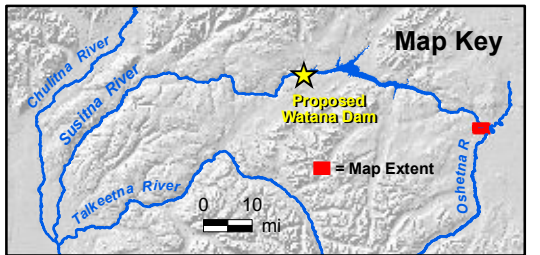
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



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Map 2 of 55





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

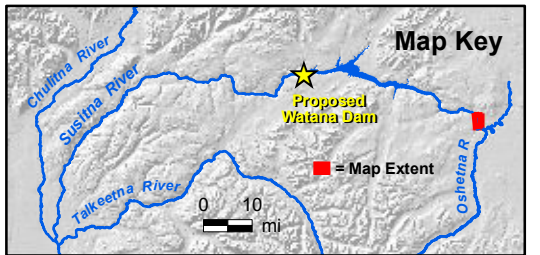
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



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Projection: AK SP Zone 4 NAD 1983  
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Map 3 of 55





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

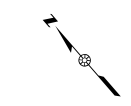
- Main Channel
- - - Split Main Channel
- · · · · Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

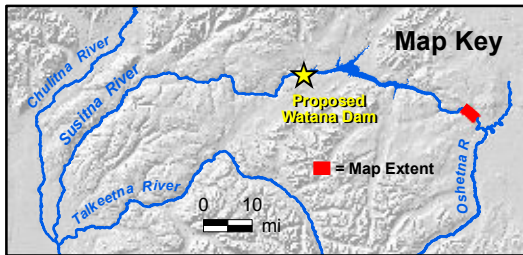


Map 4 of 55



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- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - - - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

- Mesohabitat (2012)**
- - - Rapid
  - - - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

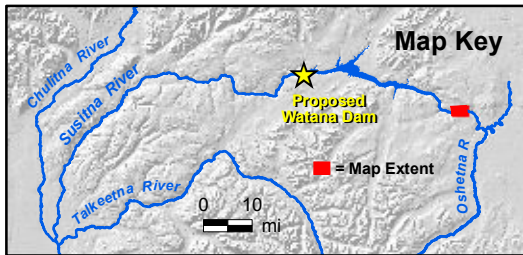


Map 5 of 55



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Projection: AK SP Zone 4 NAD 1983  
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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- - - Split Main Channel
- · - · - Multiple Split Main Channel
- Side Channel
- Side Slough

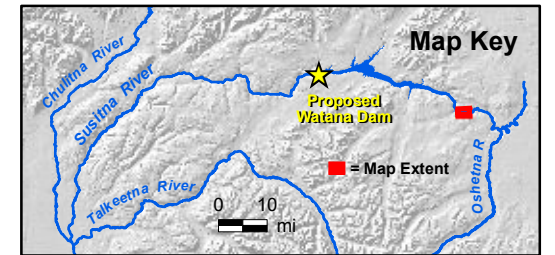
**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- - - Split Main Channel
- · · · · Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

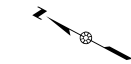
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

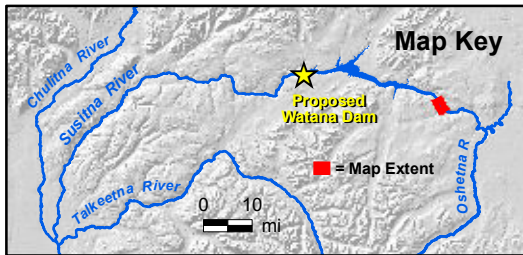
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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

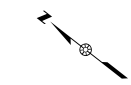
**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

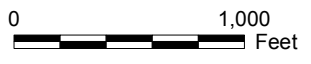
**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

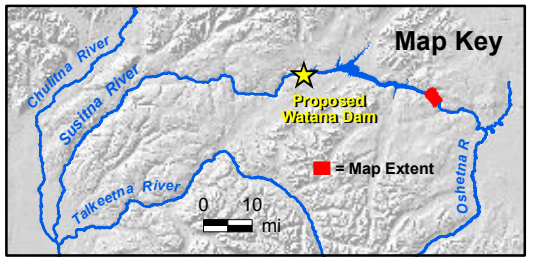
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- - - Split Main Channel
- - - - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

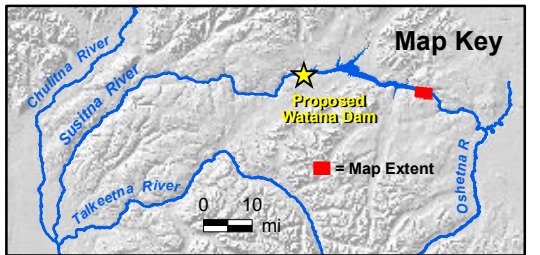


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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

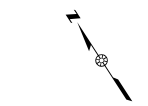
- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

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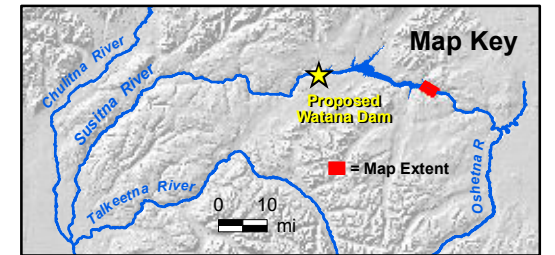


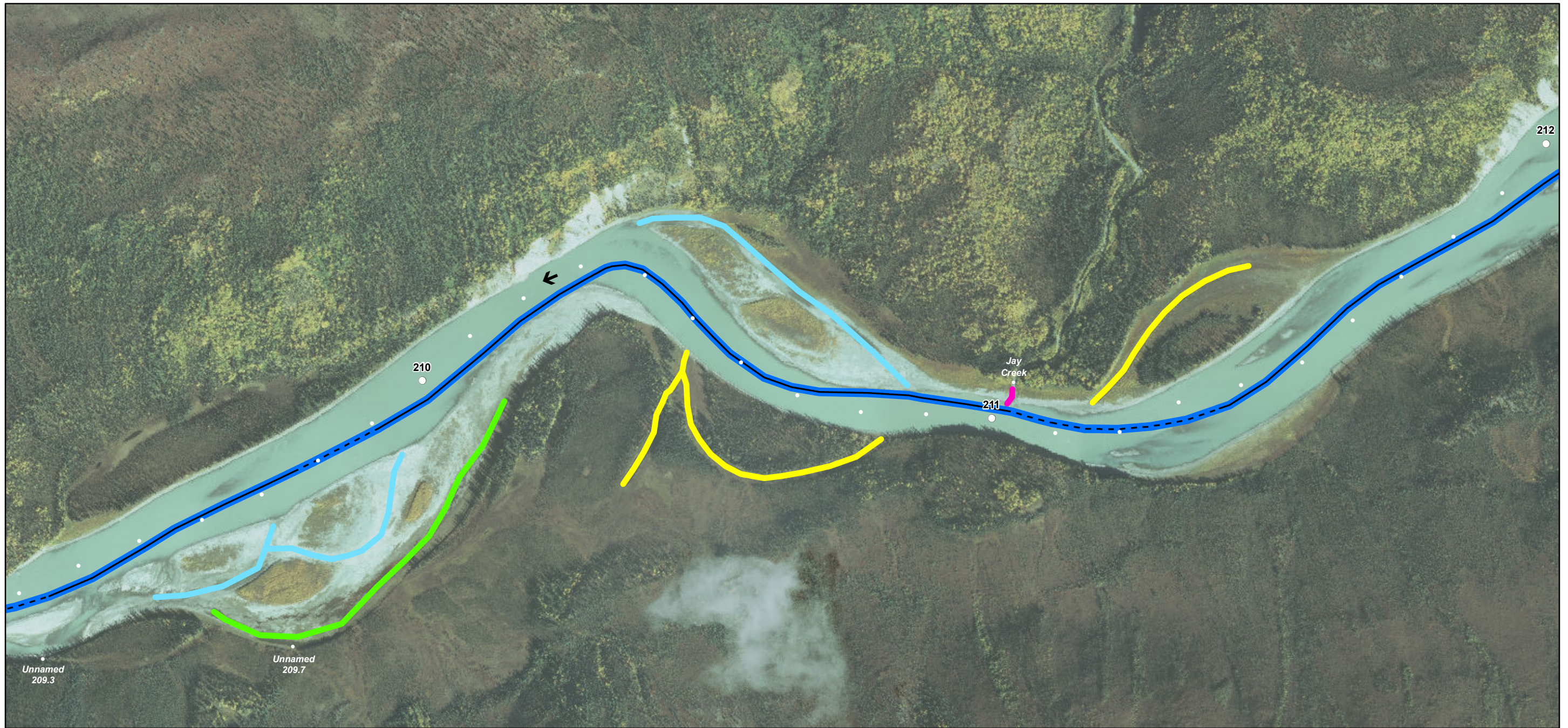
**Map 10 of 55**



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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

— Upland Slough

- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

**Mesohabitat (2012)**

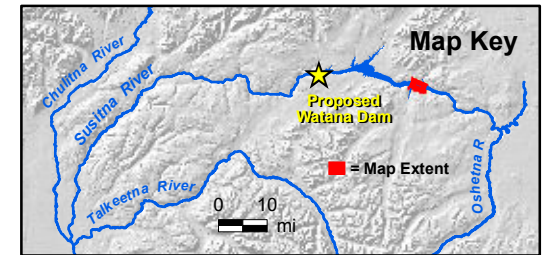
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - - - Split Main Channel
  - · · · · Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

- Mesohabitat (2012)**
- - - Rapid
  - - - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

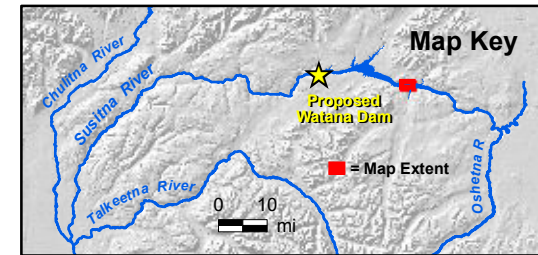
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

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**ALASKA ENERGY AUTHORITY**

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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

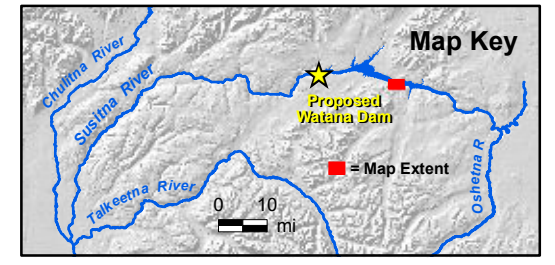


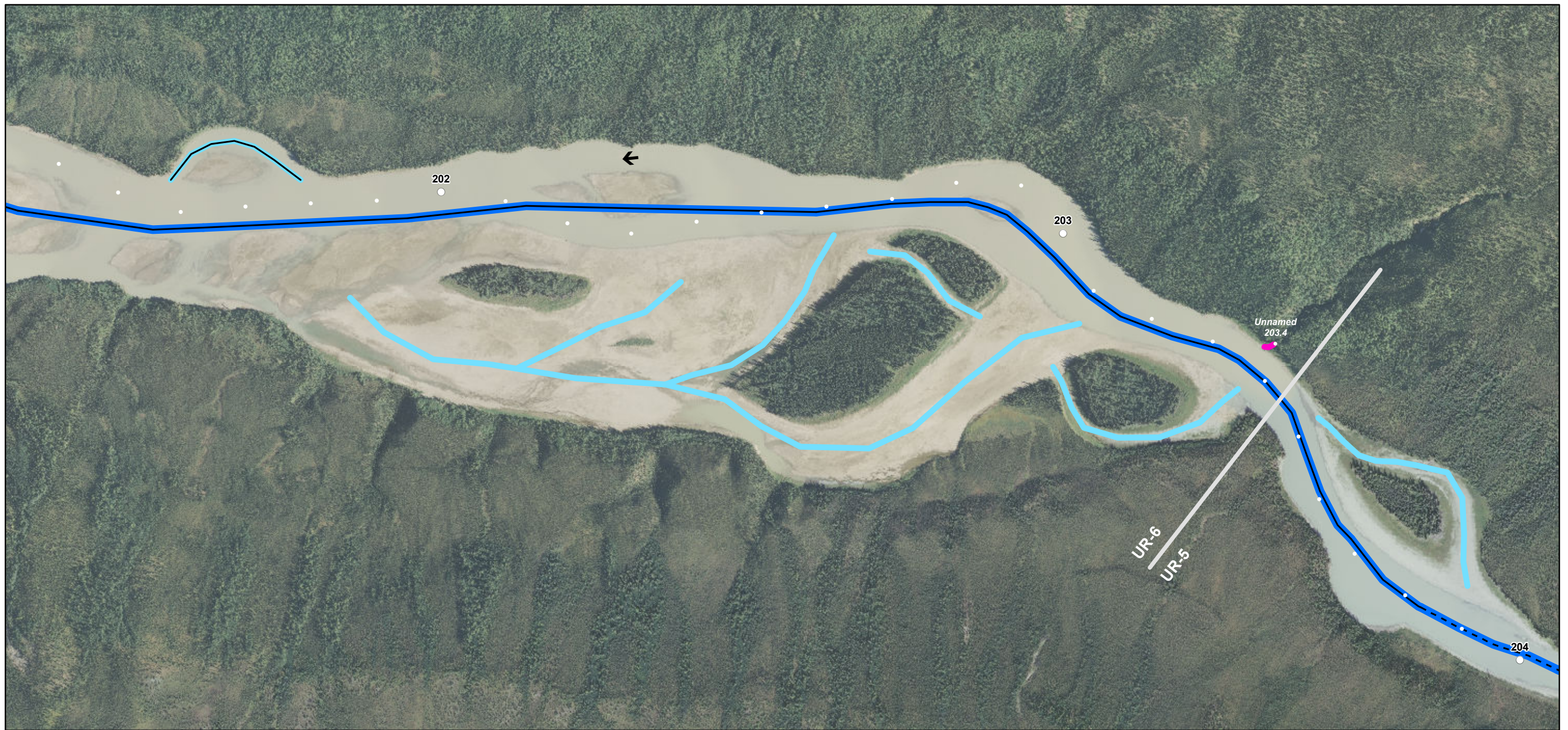
**Map 13 of 55**



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
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 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

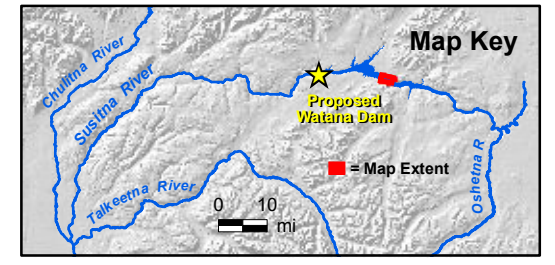


**Map 14 of 55**



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
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- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

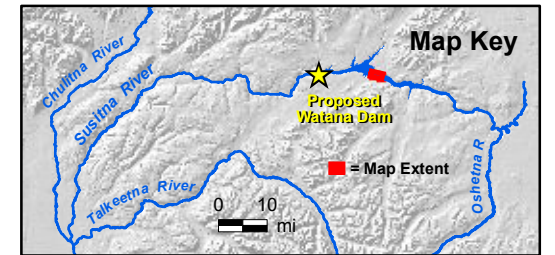
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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Projection: AK SP Zone 4 NAD 1983  
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Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

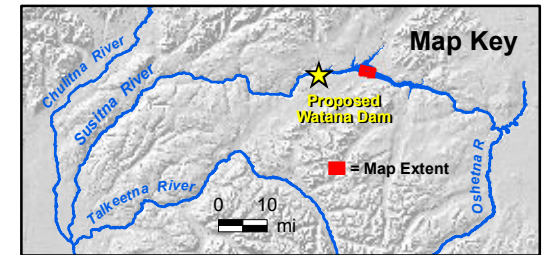


Map 16 of 55



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
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 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
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\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

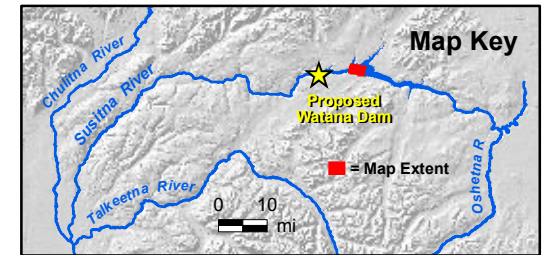


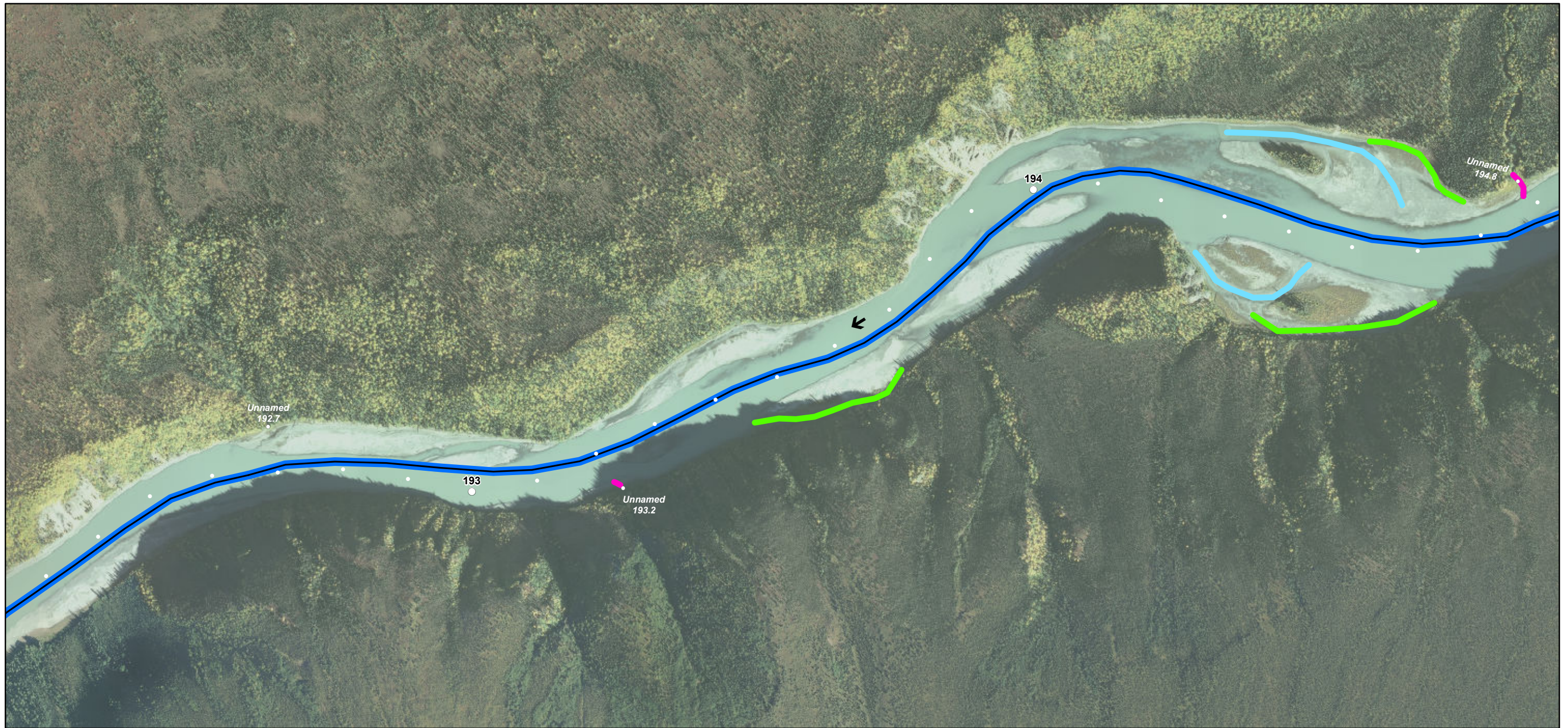
Map 17 of 55



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

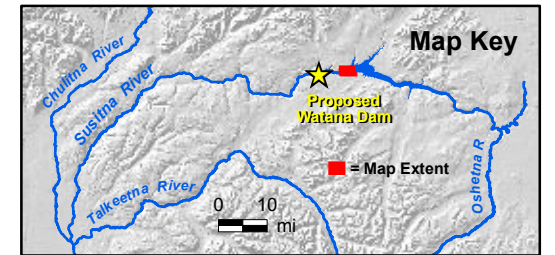
- Upland Slough
- Tributary Mouth
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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

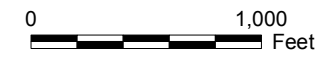
**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

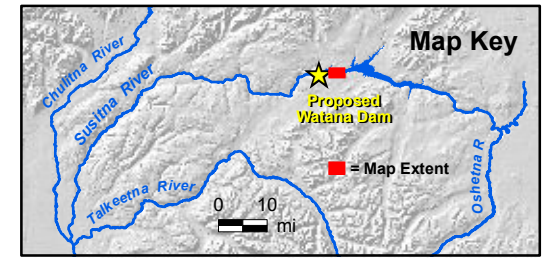
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



**Map 19 of 55**



Projection: AK SP Zone 4 NAD 1983  
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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

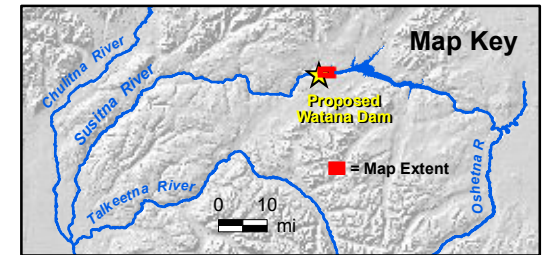
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

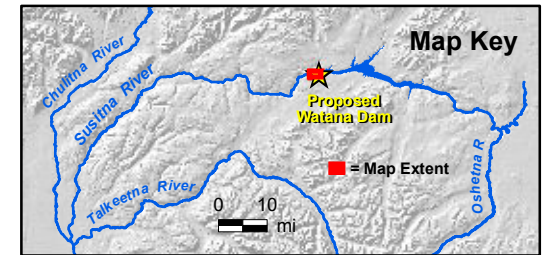
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

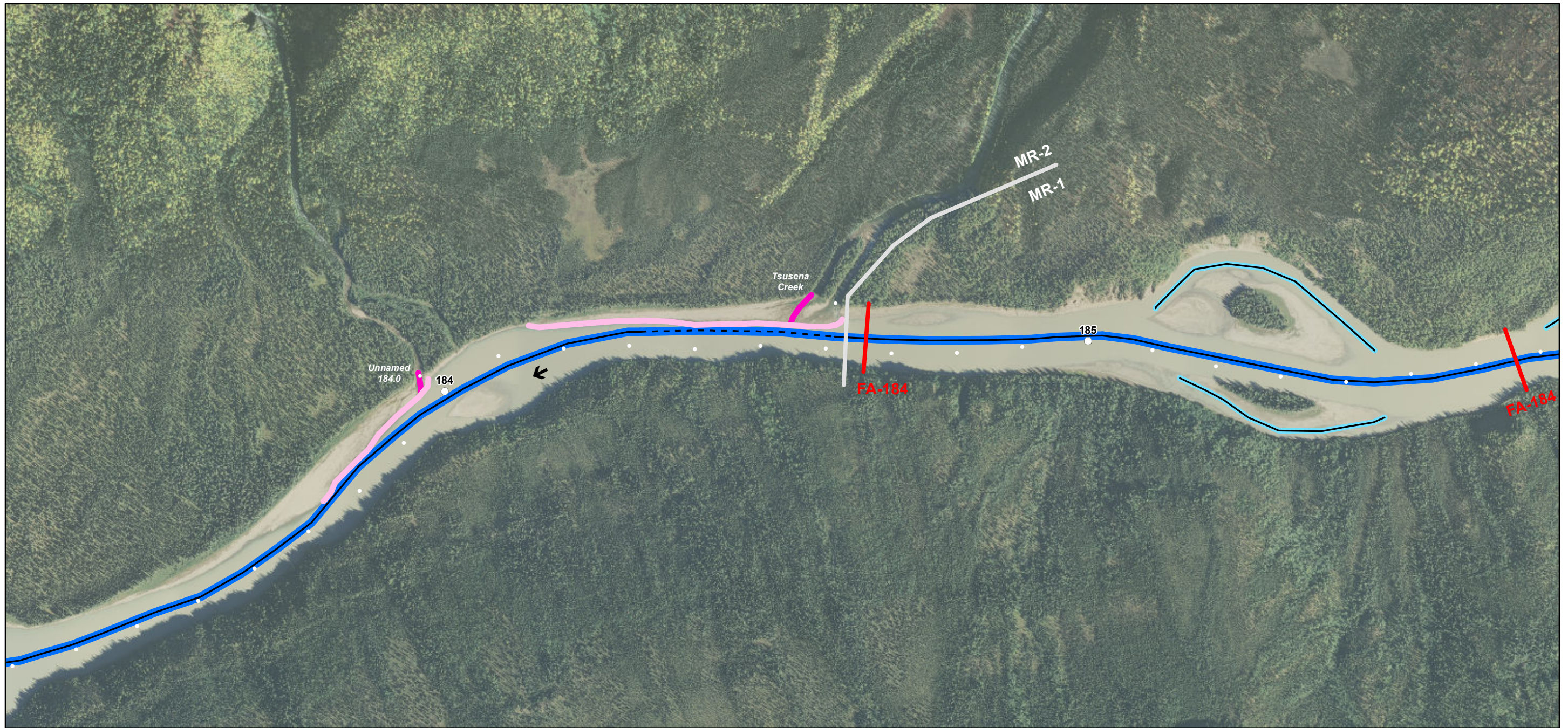
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - - - Split Main Channel
  - - - - - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

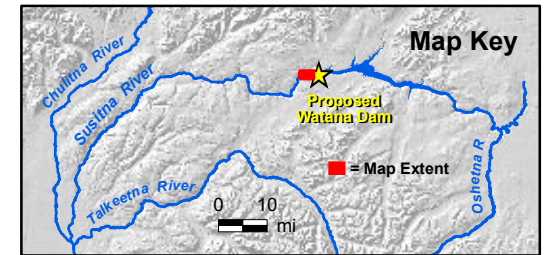
- Mesohabitat (2012)**
- - - - - Rapid
  - - - - - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

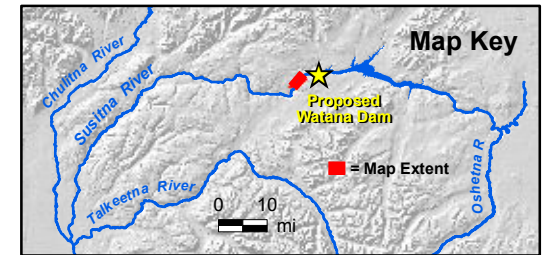
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

**Map 23 of 55**



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

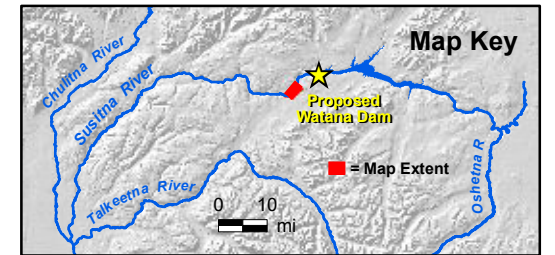
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

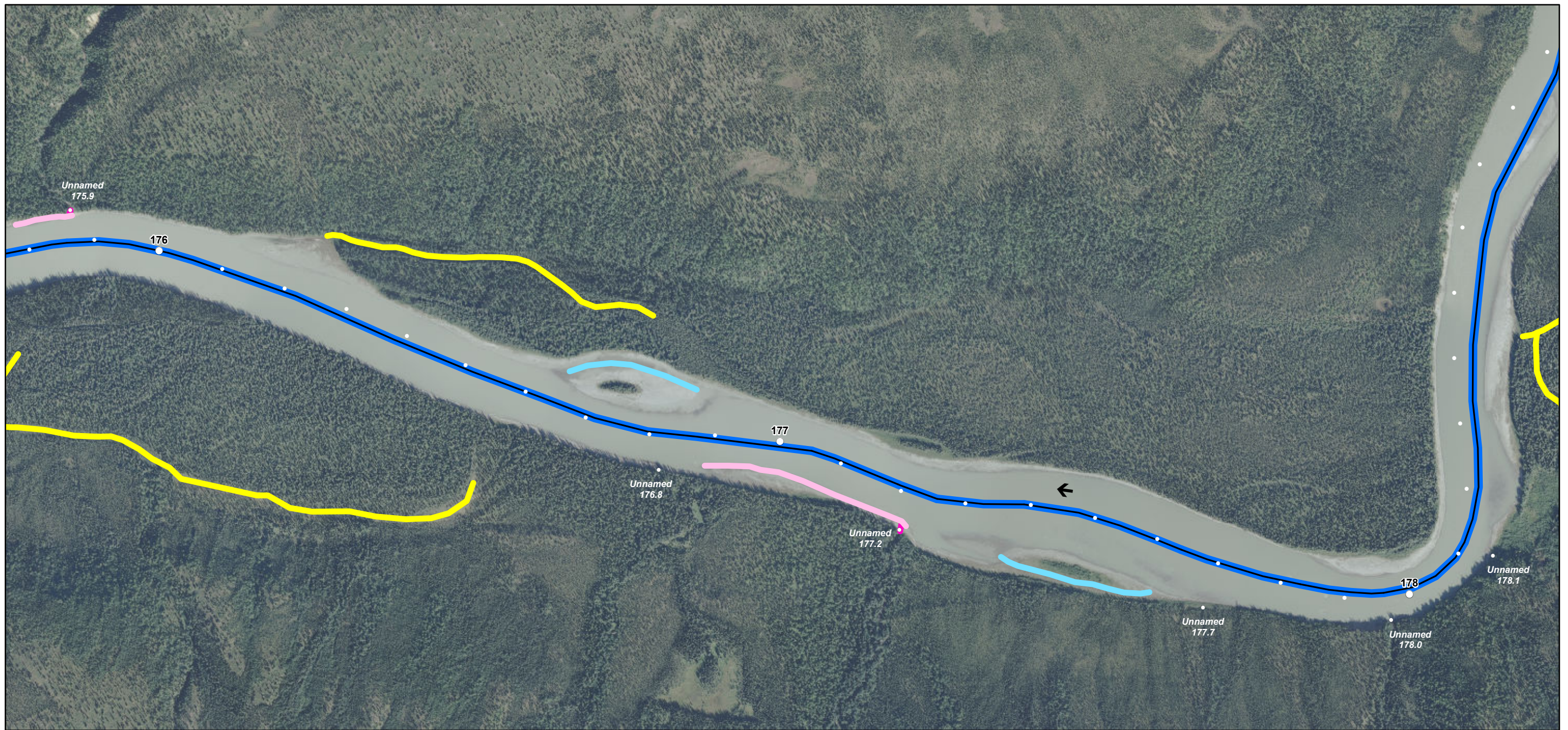


Map 24 of 55

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd



Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

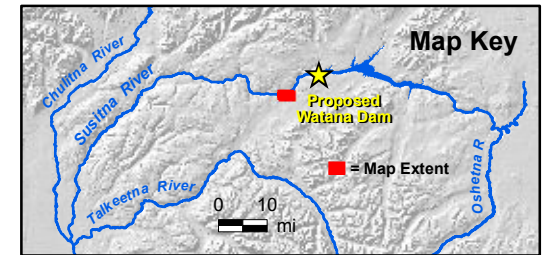
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

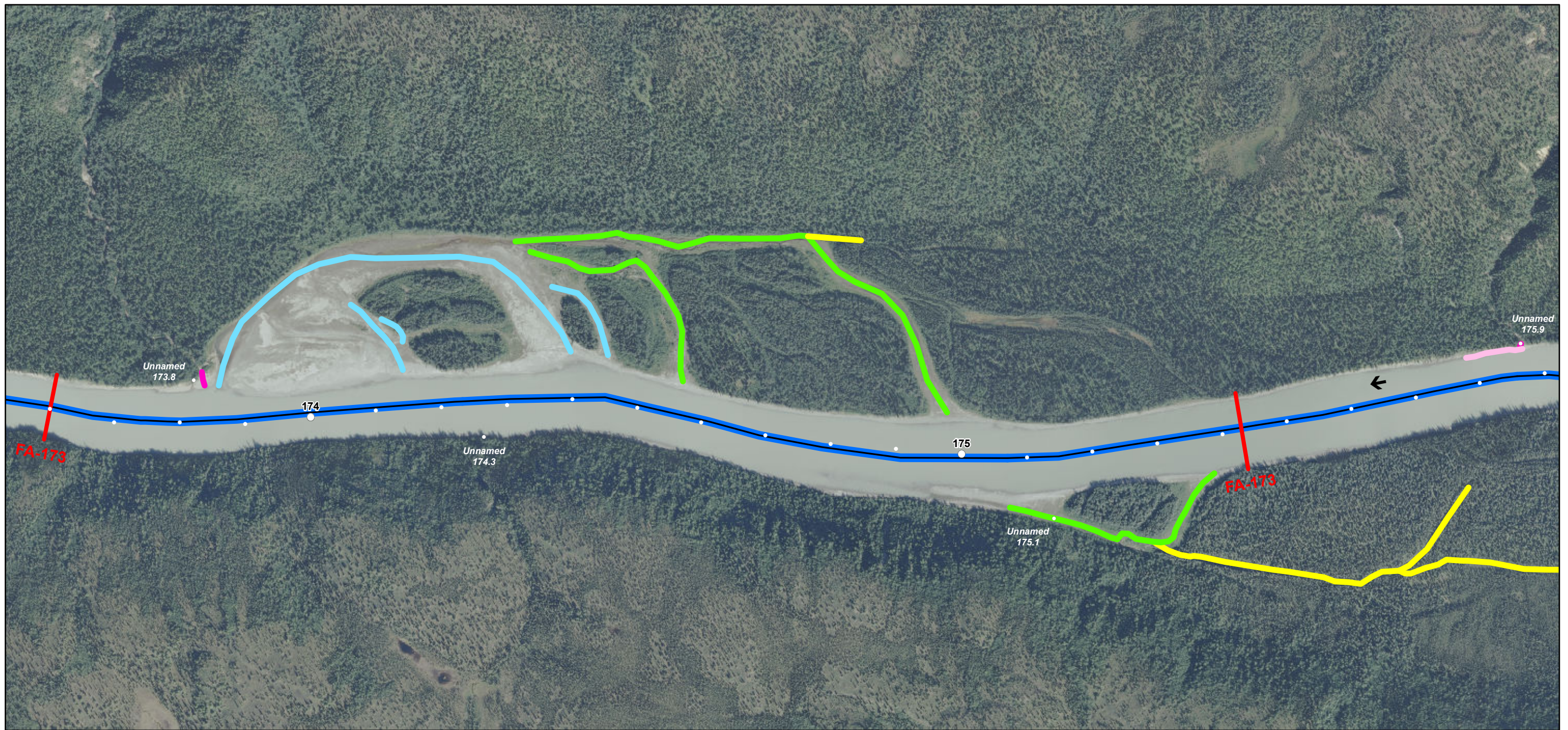
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

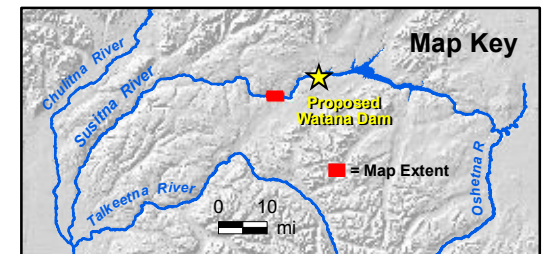


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0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

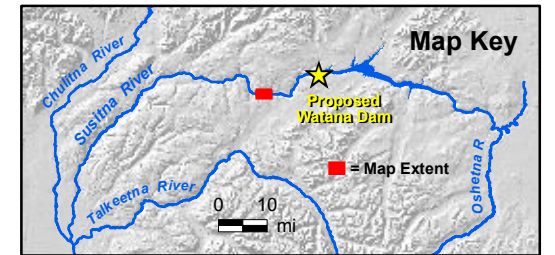
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

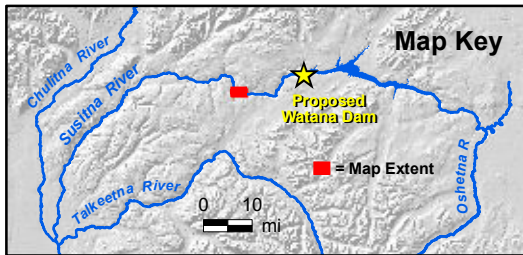
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

**Mesohabitat (2012)**

- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

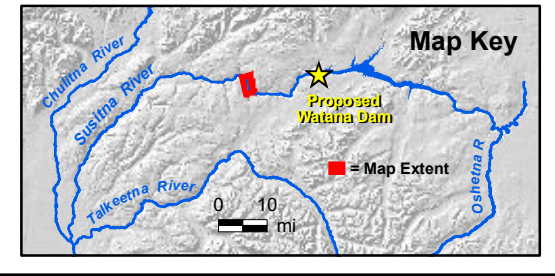
**ALASKA ENERGY AUTHORITY**

0 1,000 Feet

0 10 mi

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Projection: AK SP Zone 4 NAD 1983  
Date Created: 11/10/2014  
Map Author: R2 - Joetta Zabolney  
File: Map\_ISR\_FA\_AQHAB\_MSDC.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

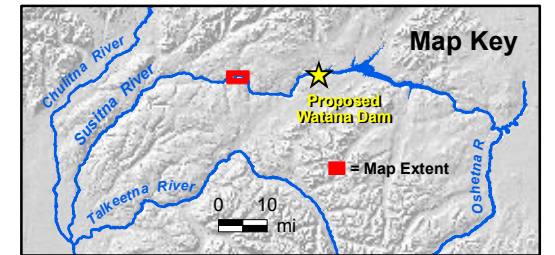


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0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MSDC.mxd







**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

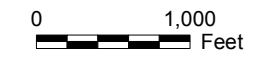
**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

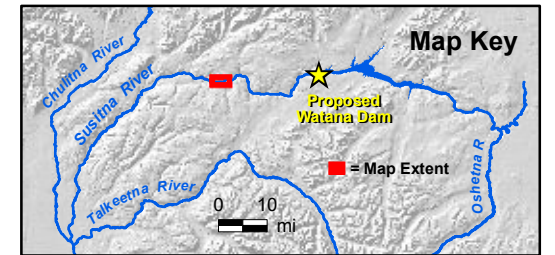
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

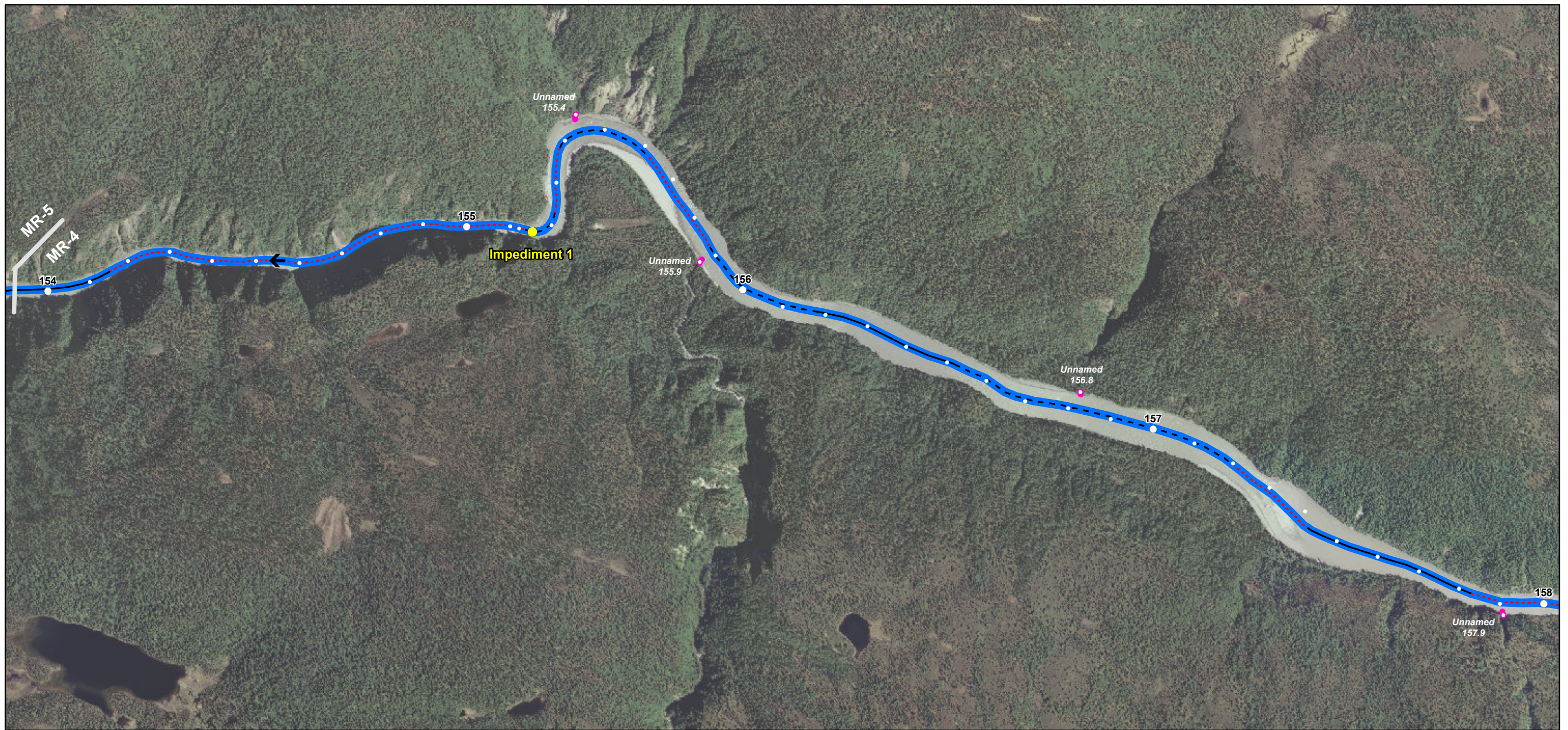
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MSDC.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

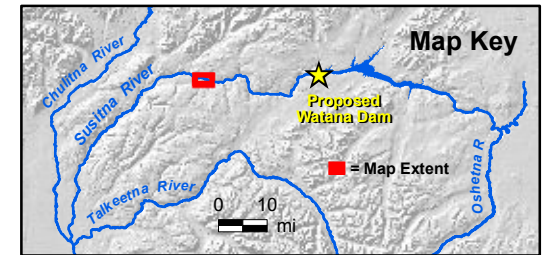


Map 32 of 55



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MSDC.mxd





- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

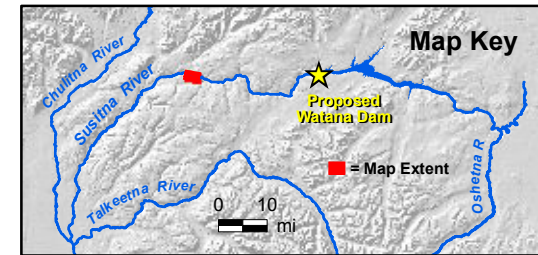
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

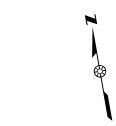
- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

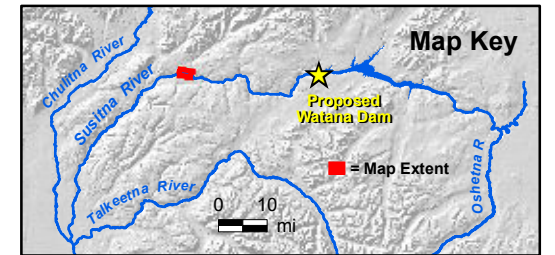


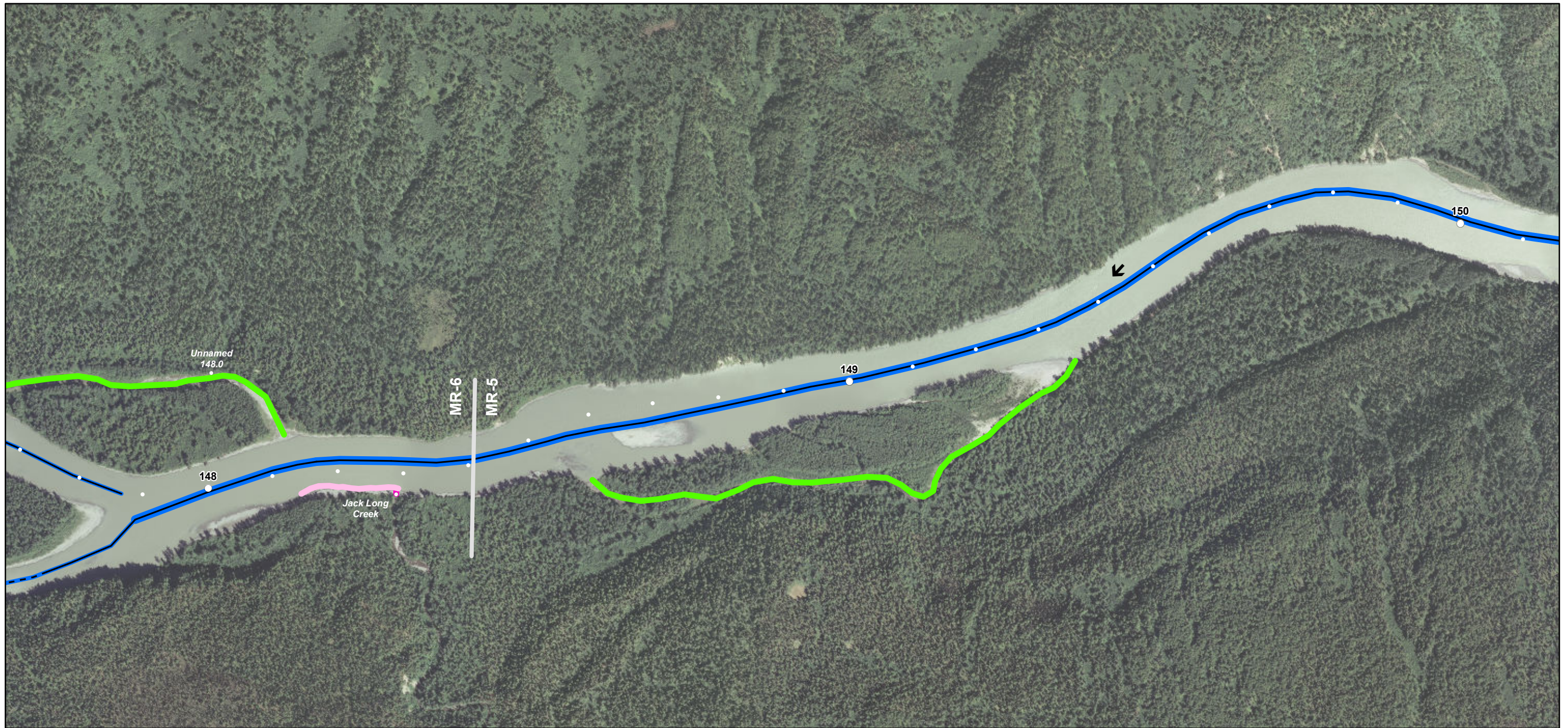
Map 34 of 55



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

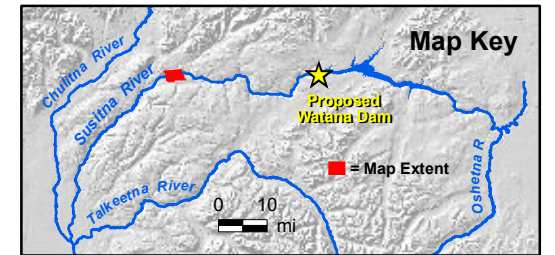
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

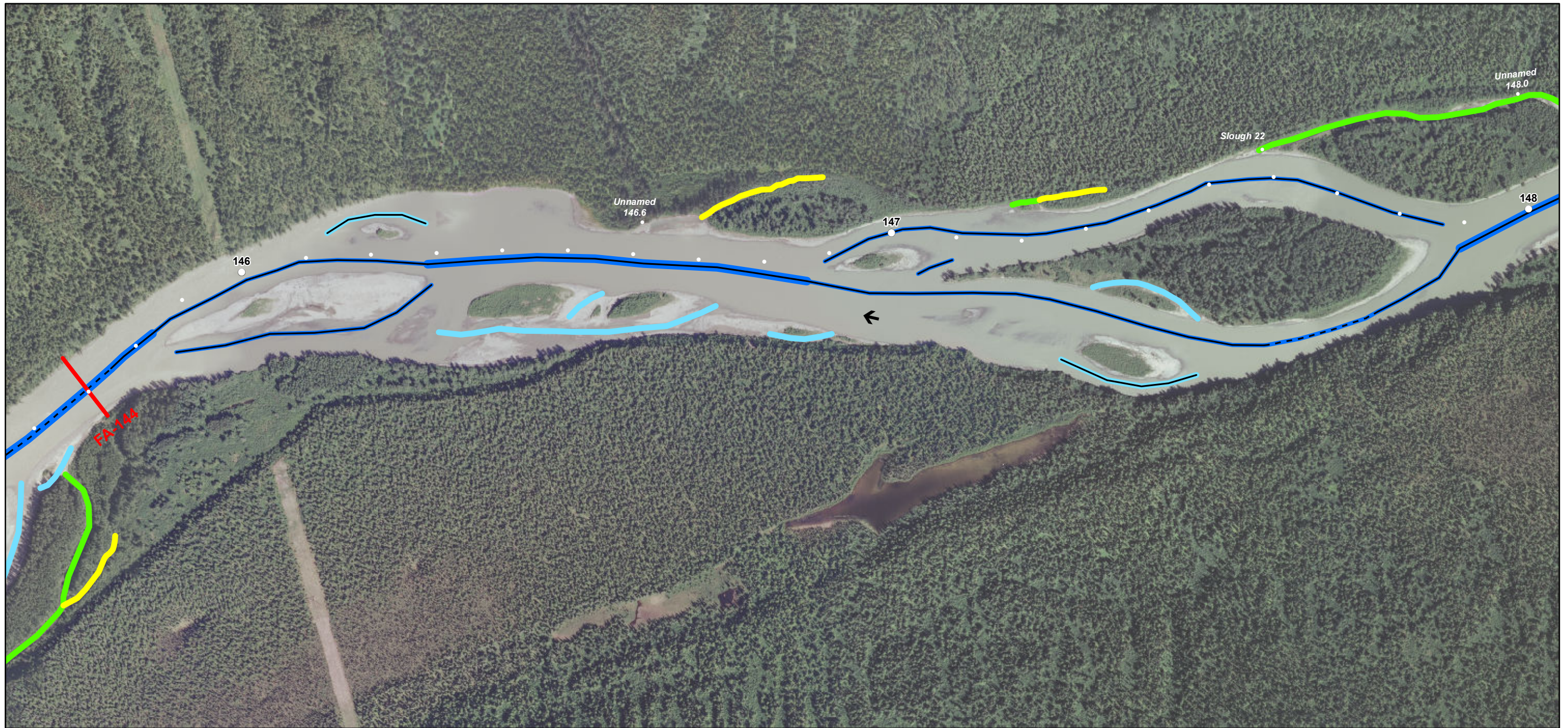
Map 35 of 55



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

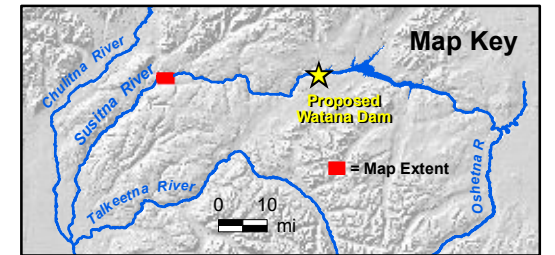


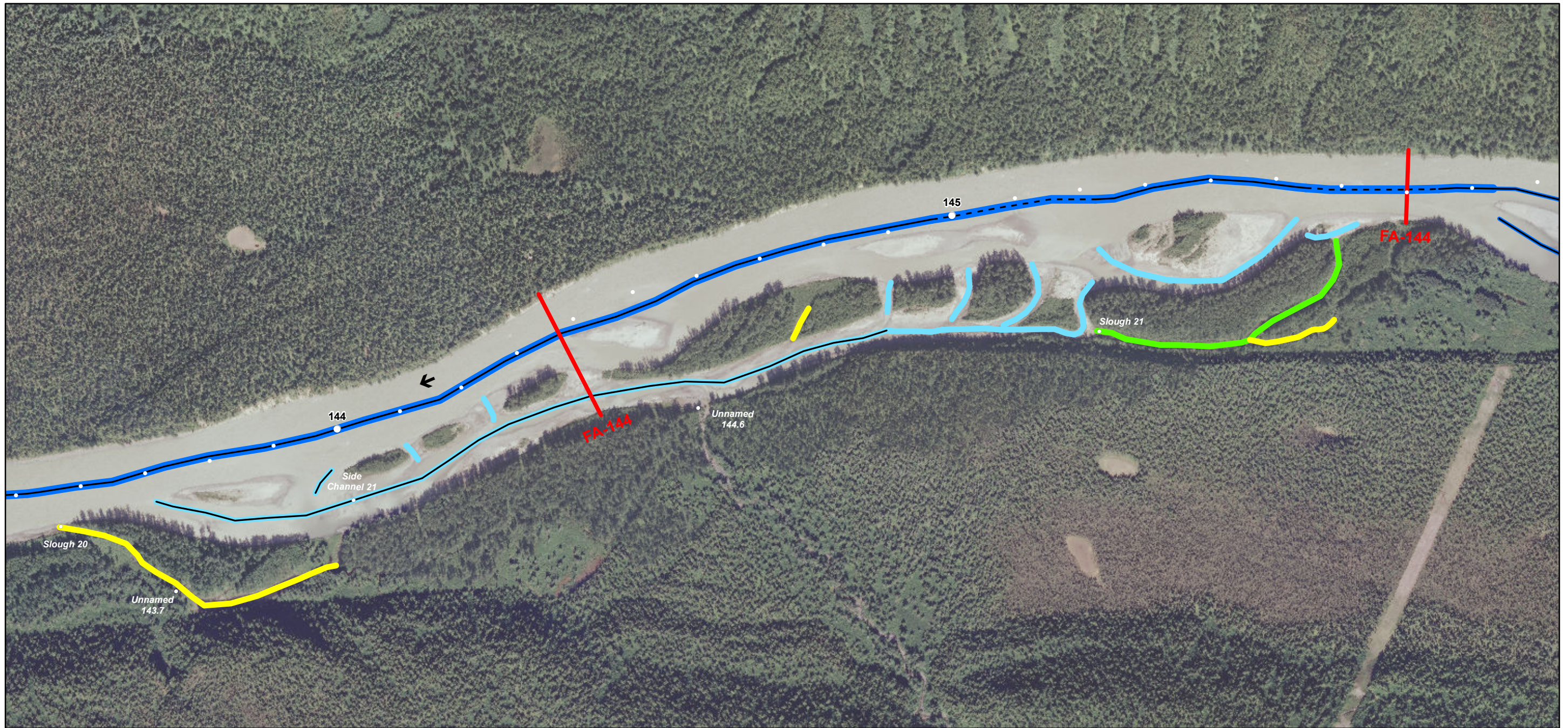
Map 36 of 55



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

**Mesohabitat (2012)**

- Rapid
- Riffle
- Run/Glide
- Pool

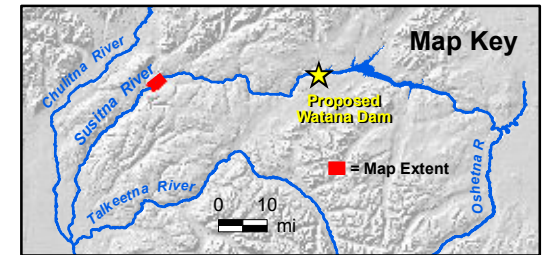
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

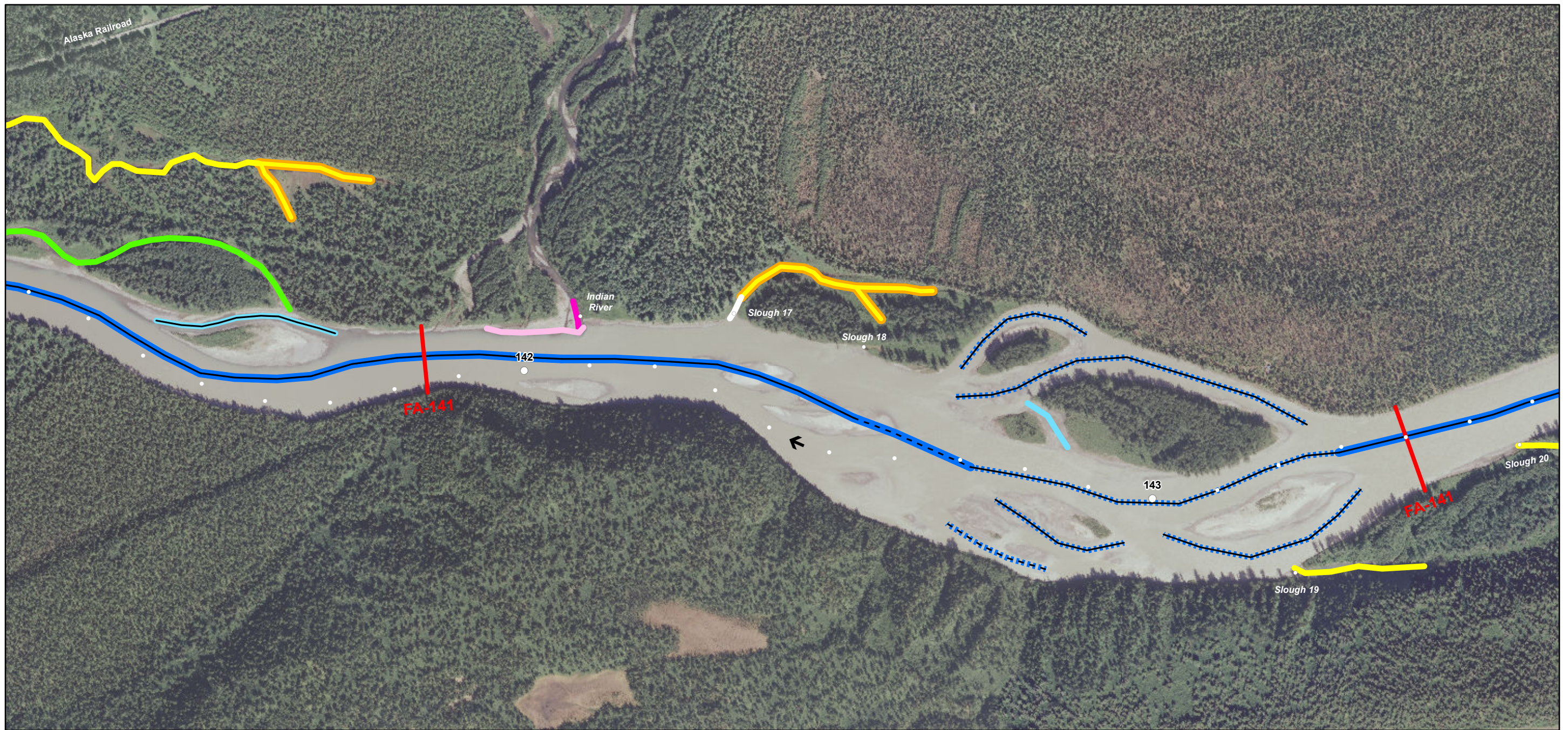
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

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Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

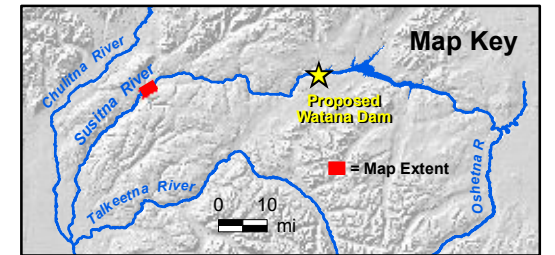
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

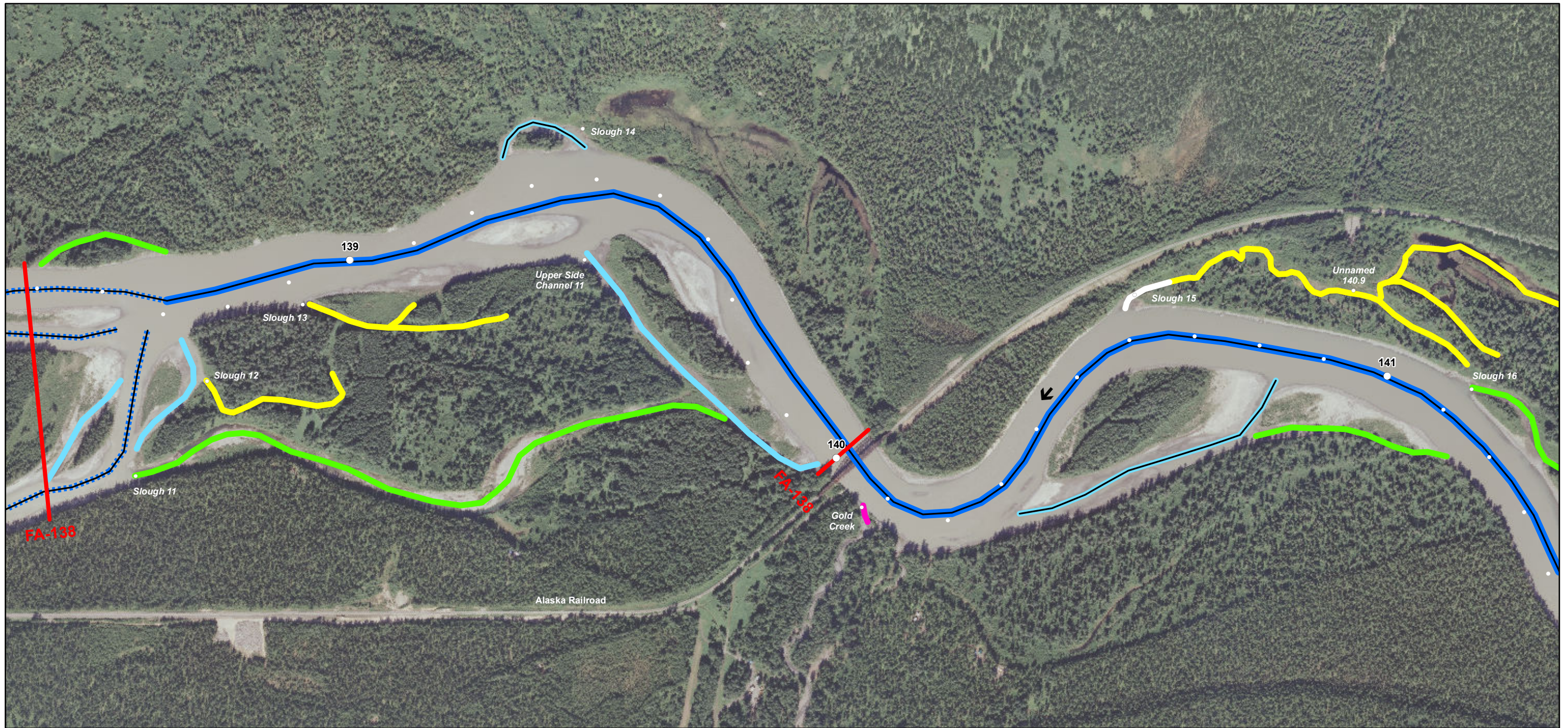


Map 38 of 55

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabloney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd







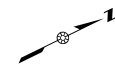
- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

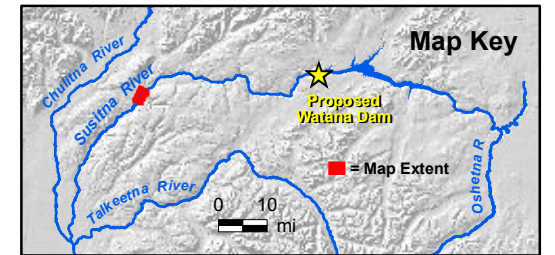
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

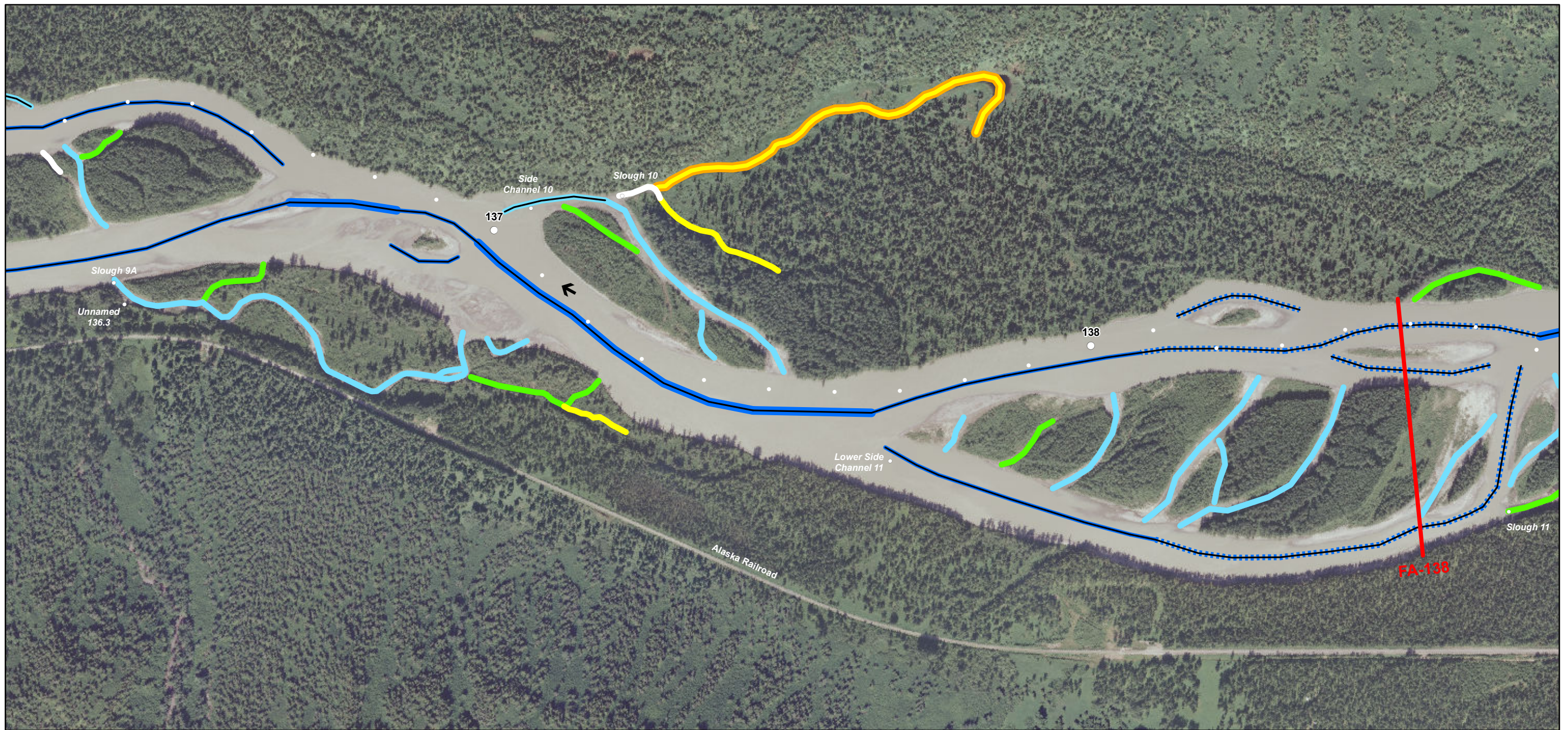


0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

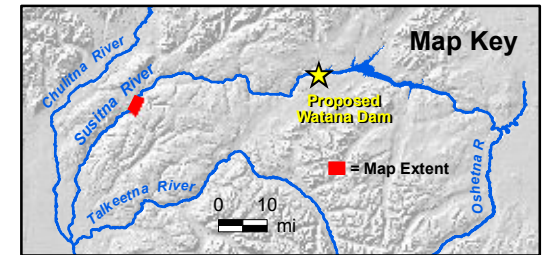
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

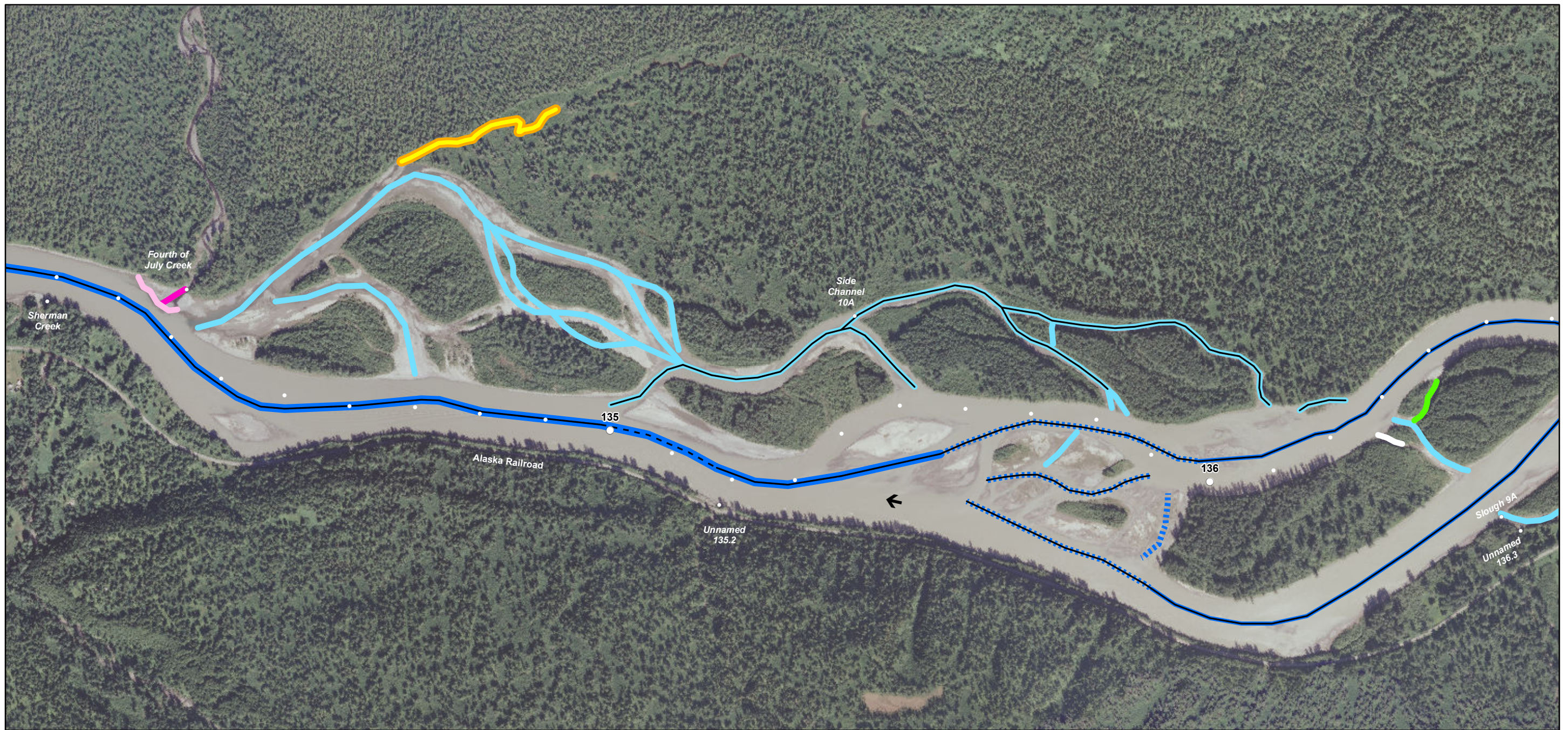
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

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Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

**Mesohabitat (2012)**

- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

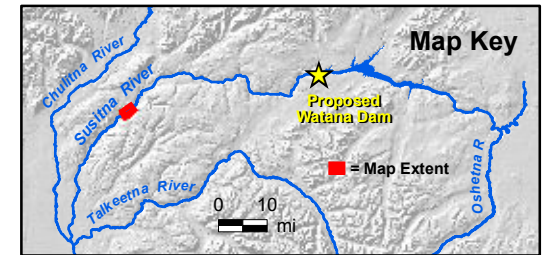


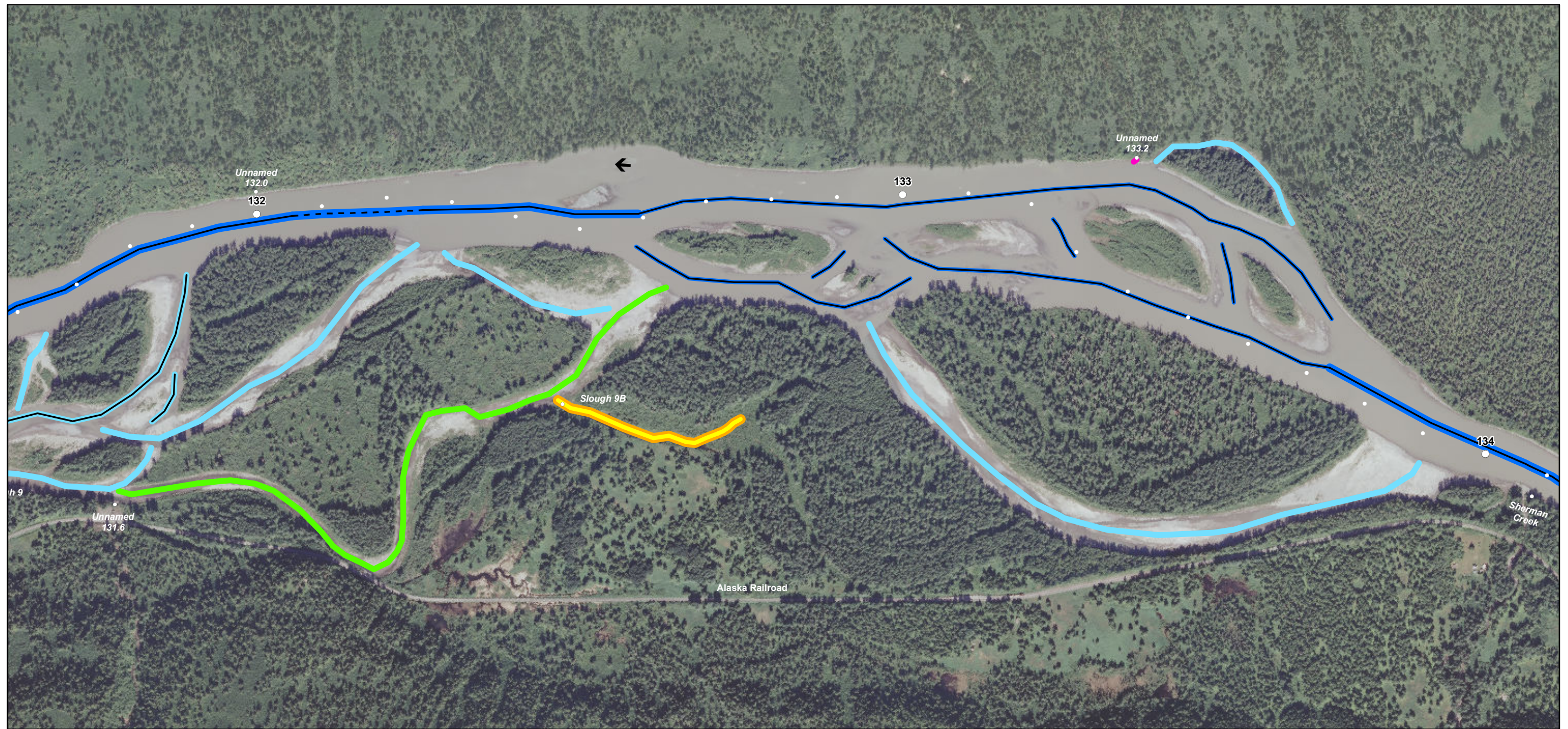
**Map 41 of 55**



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

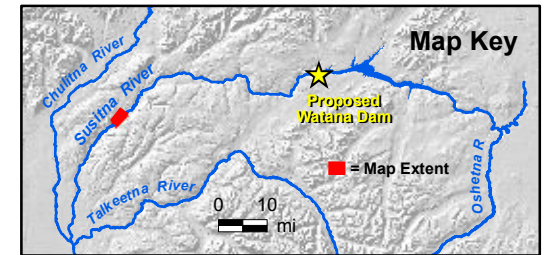
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

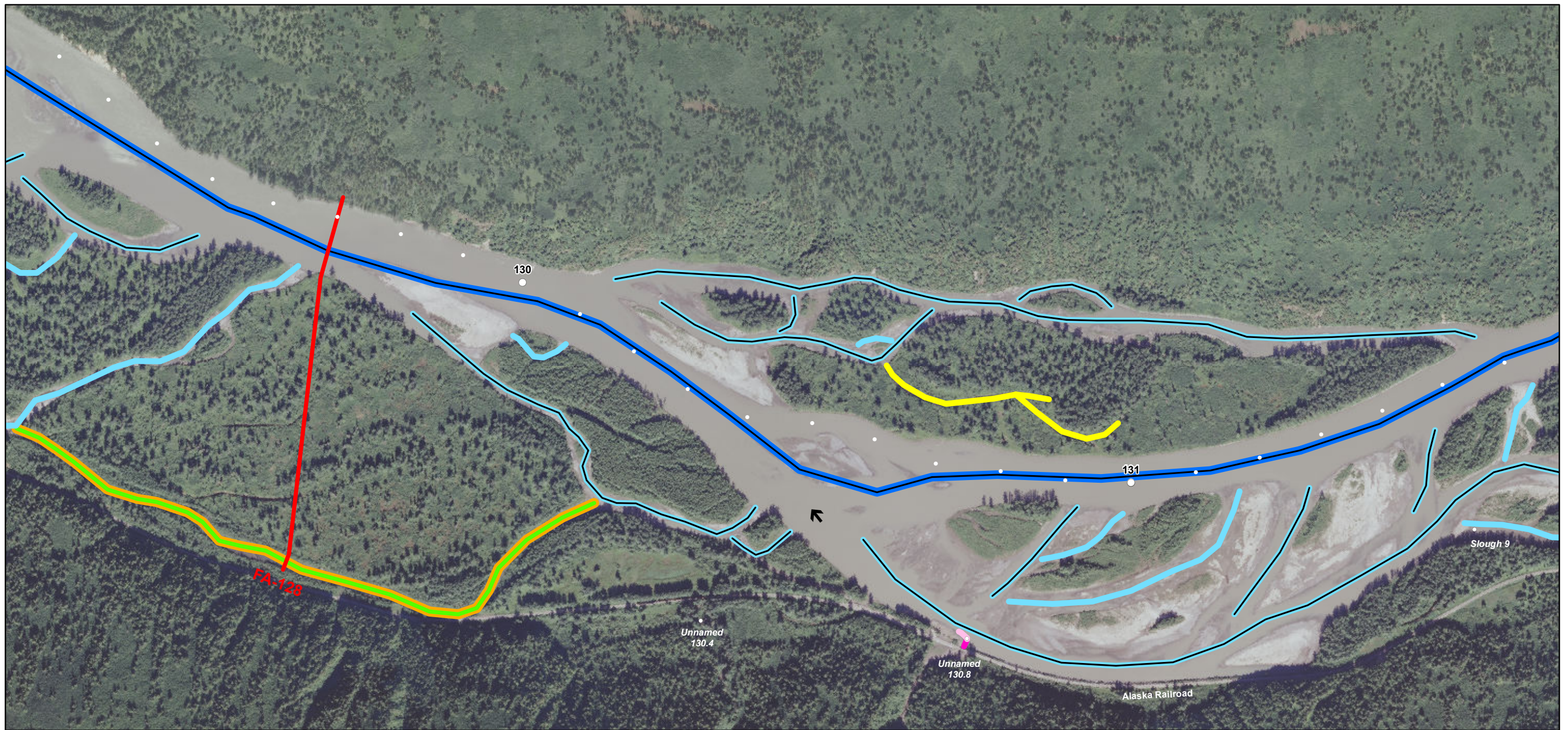
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

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Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

**Mesohabitat (2012)**

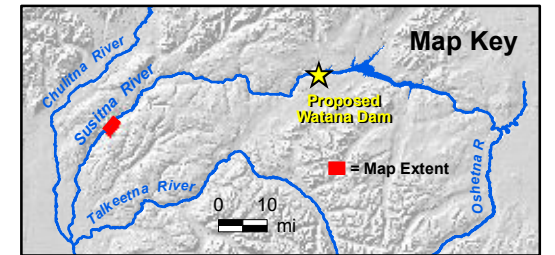
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

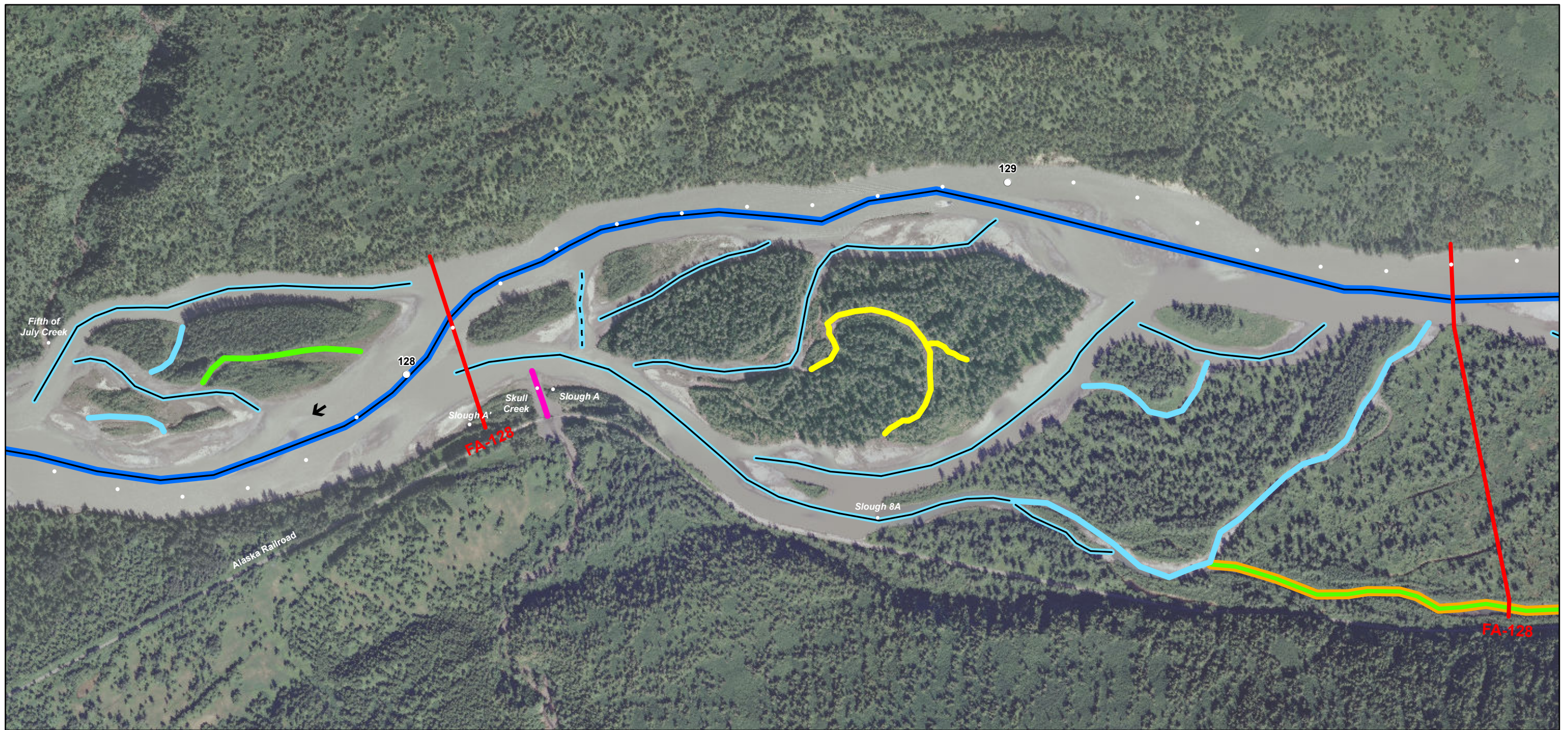


Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

**Map 43 of 55**



Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

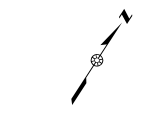
**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

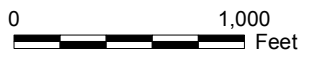
**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

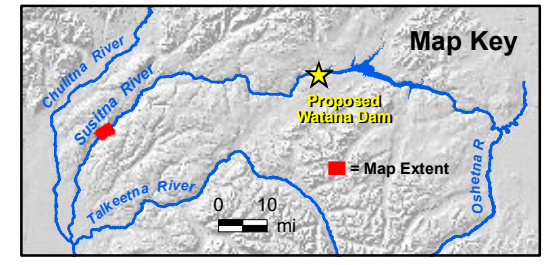
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

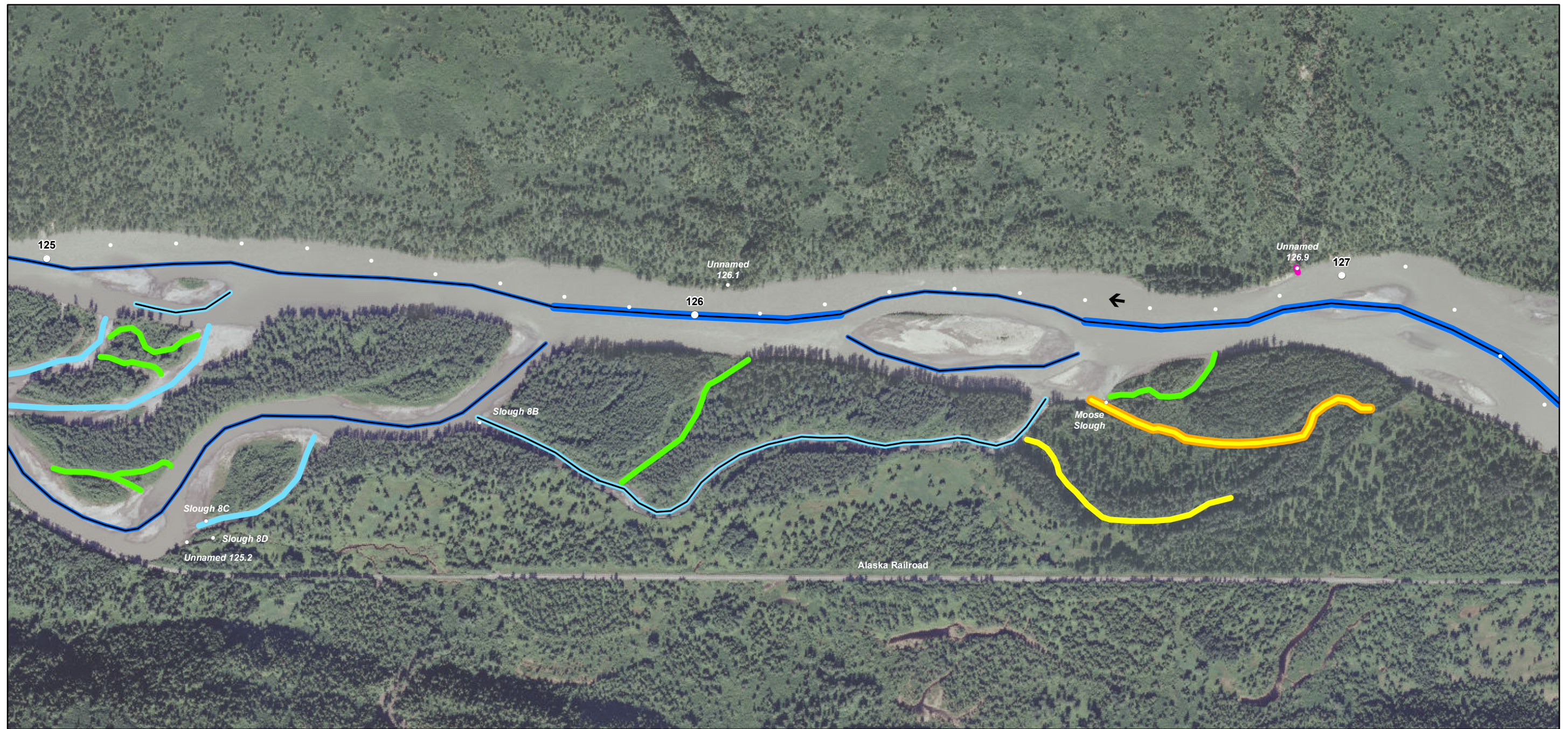


**Map 44 of 55**



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

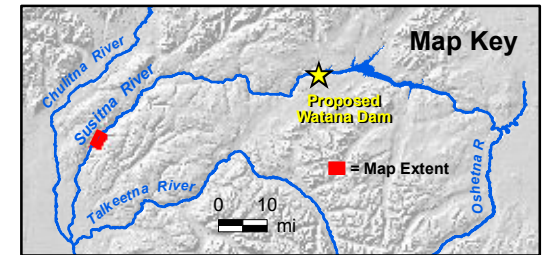
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

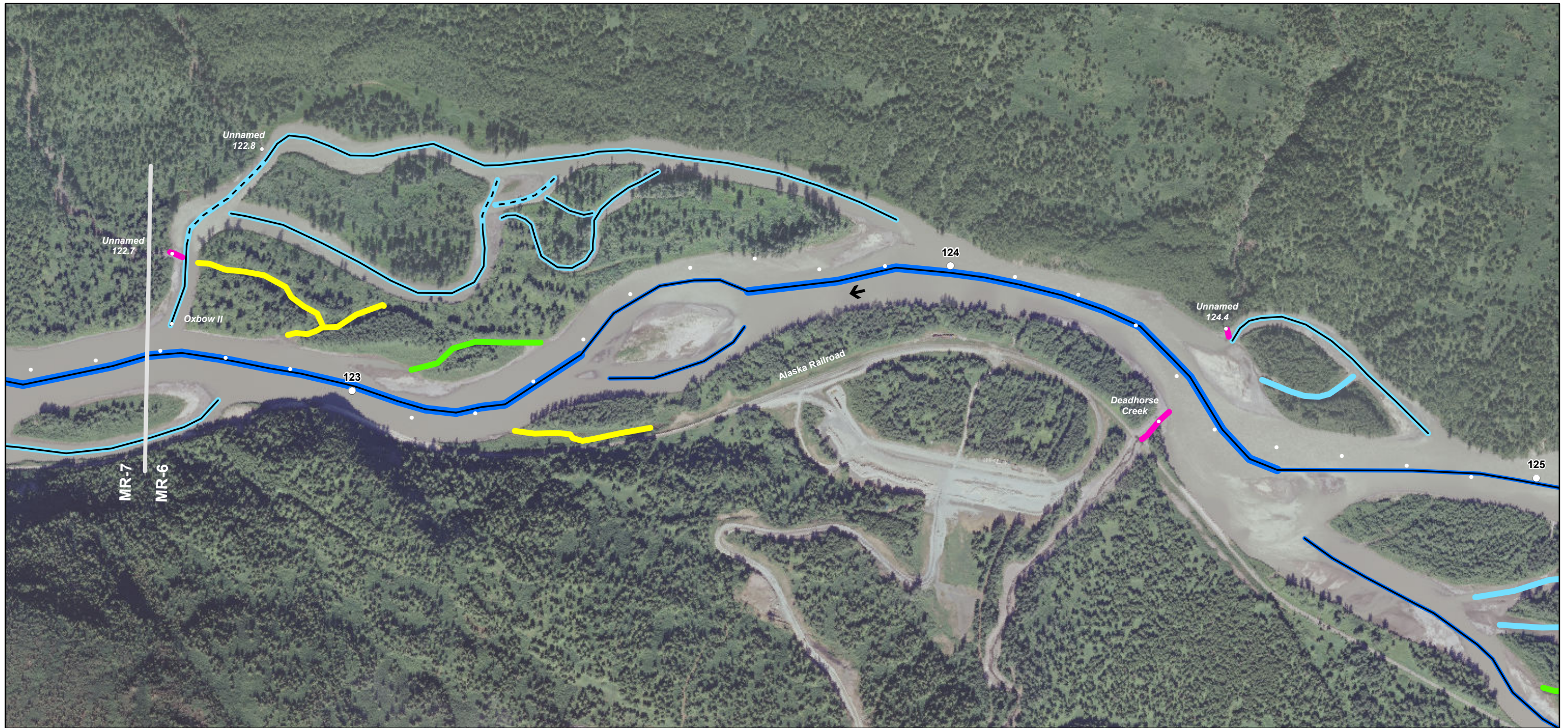


Map 45 of 55

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd



Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

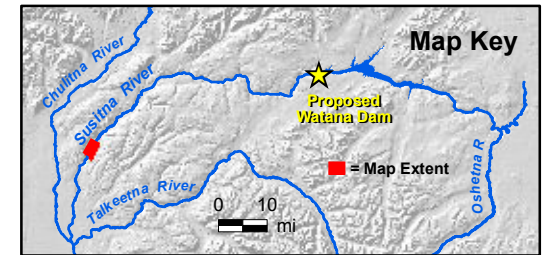
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

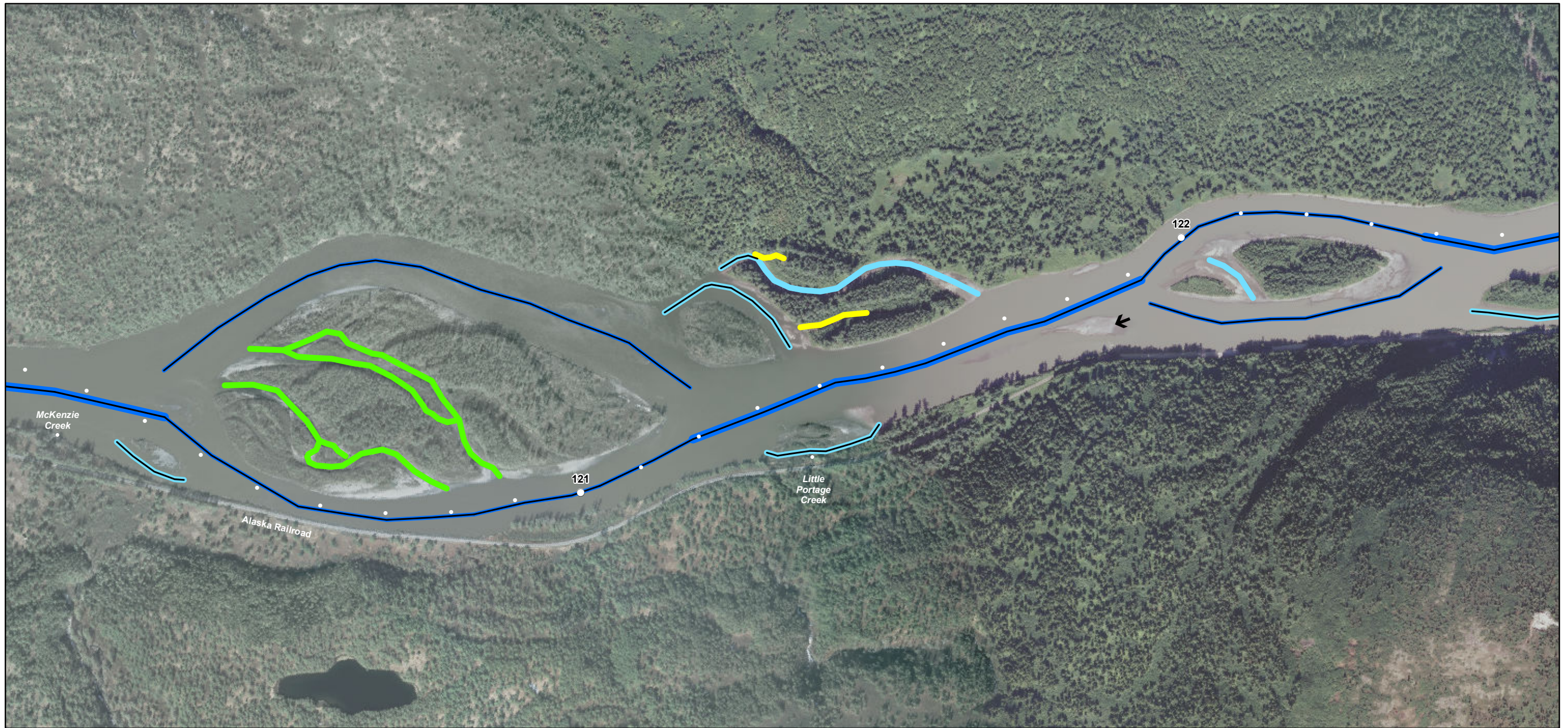


Map 46 of 55

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd







**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

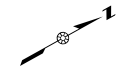
- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

**Mesohabitat (2012)**

- - - Rapid
- - - Riffle
- Run/Glide
- Pool

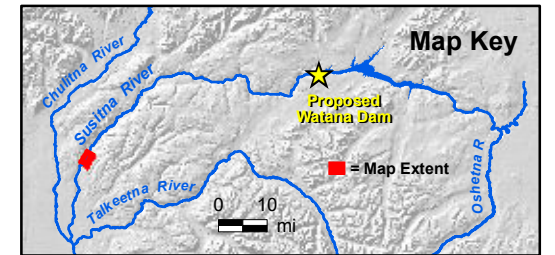
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.

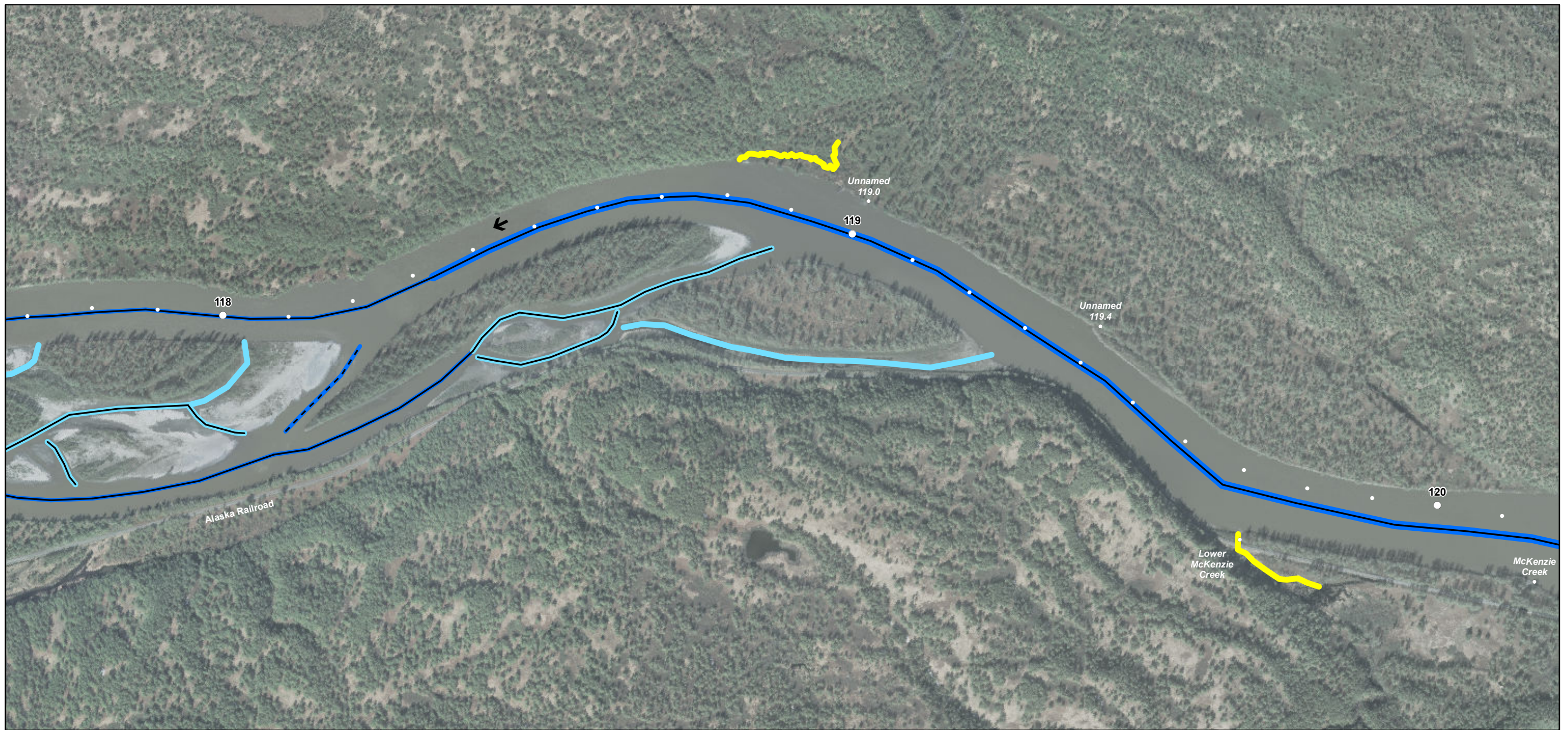


0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

**Map 47 of 55**





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

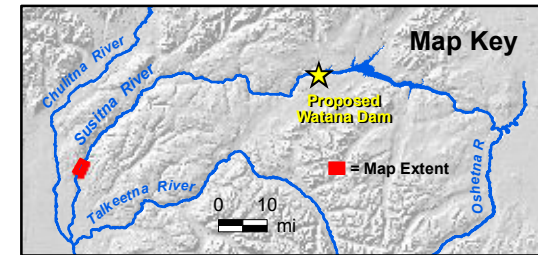
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

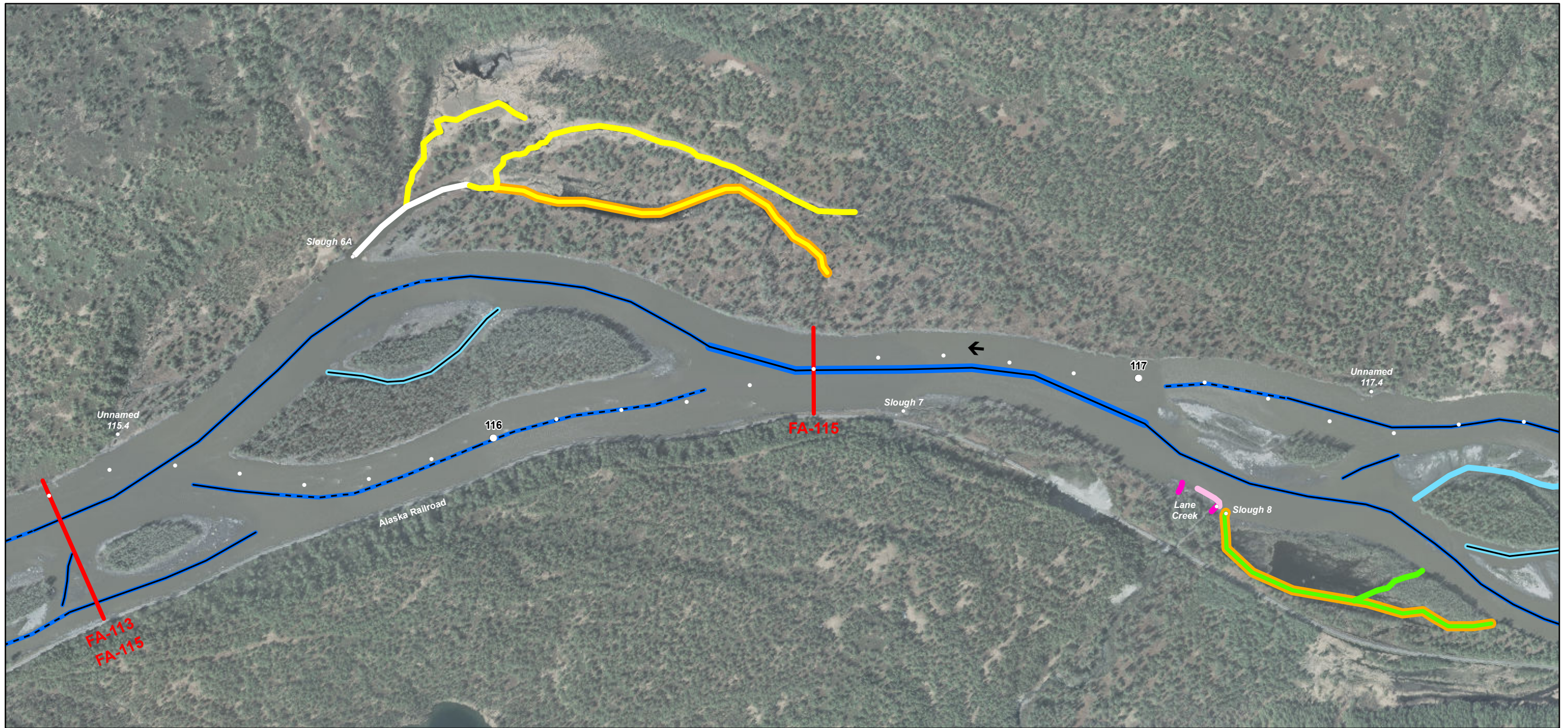
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

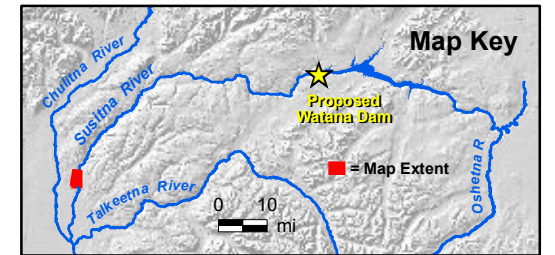
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

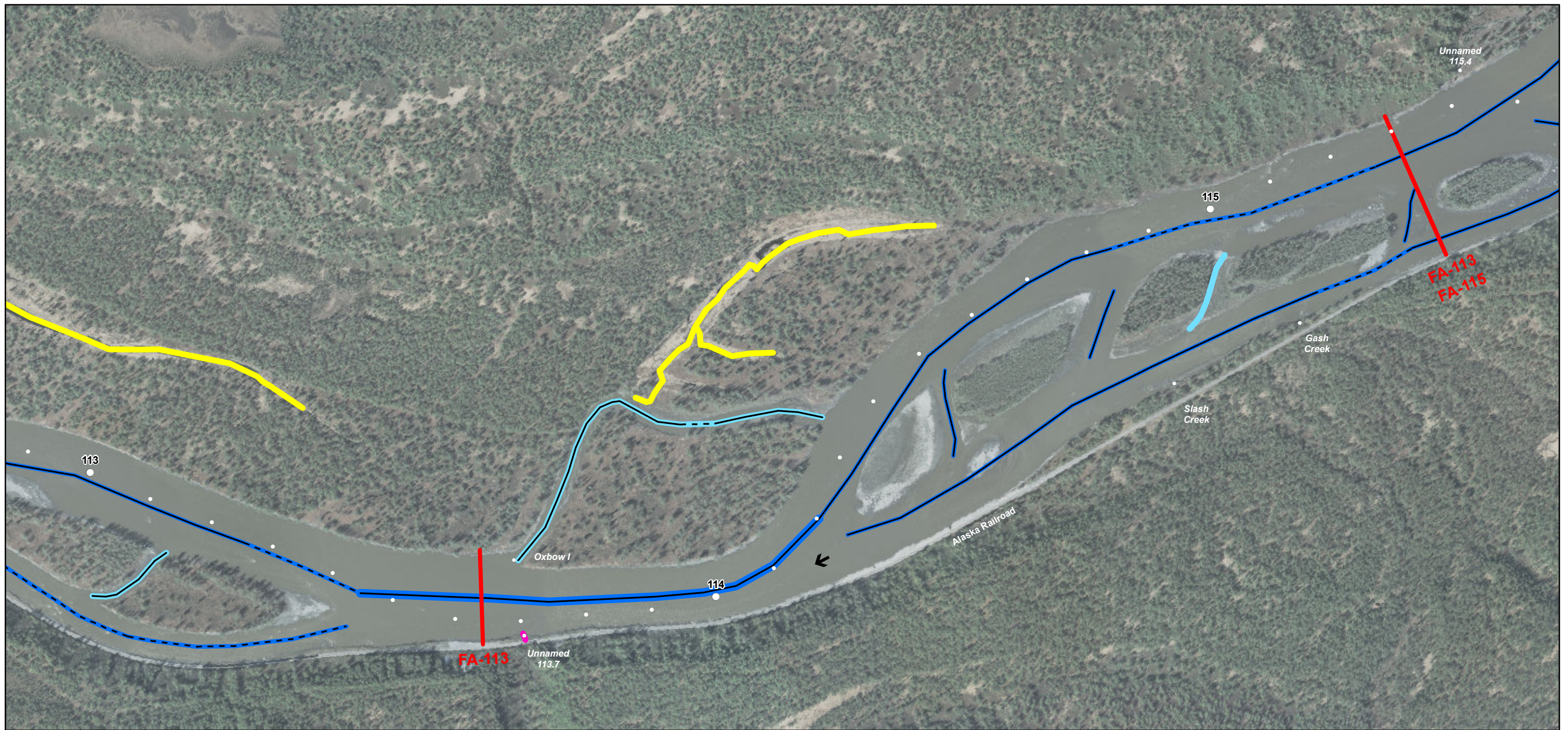
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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- Legend**
- Instream Flow Focus Area (Upper and Lower Extent)
  - Geomorphic Reach
  - Project River Mile
  - ← Flow Arrow

- Macrohabitat (2012)**
- Main Channel
  - Split Main Channel
  - Multiple Split Main Channel
  - Side Channel
  - Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

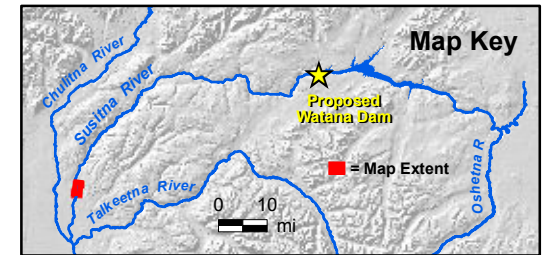
- Mesohabitat (2012)**
- Rapid
  - Riffle
  - Run/Glide
  - Pool

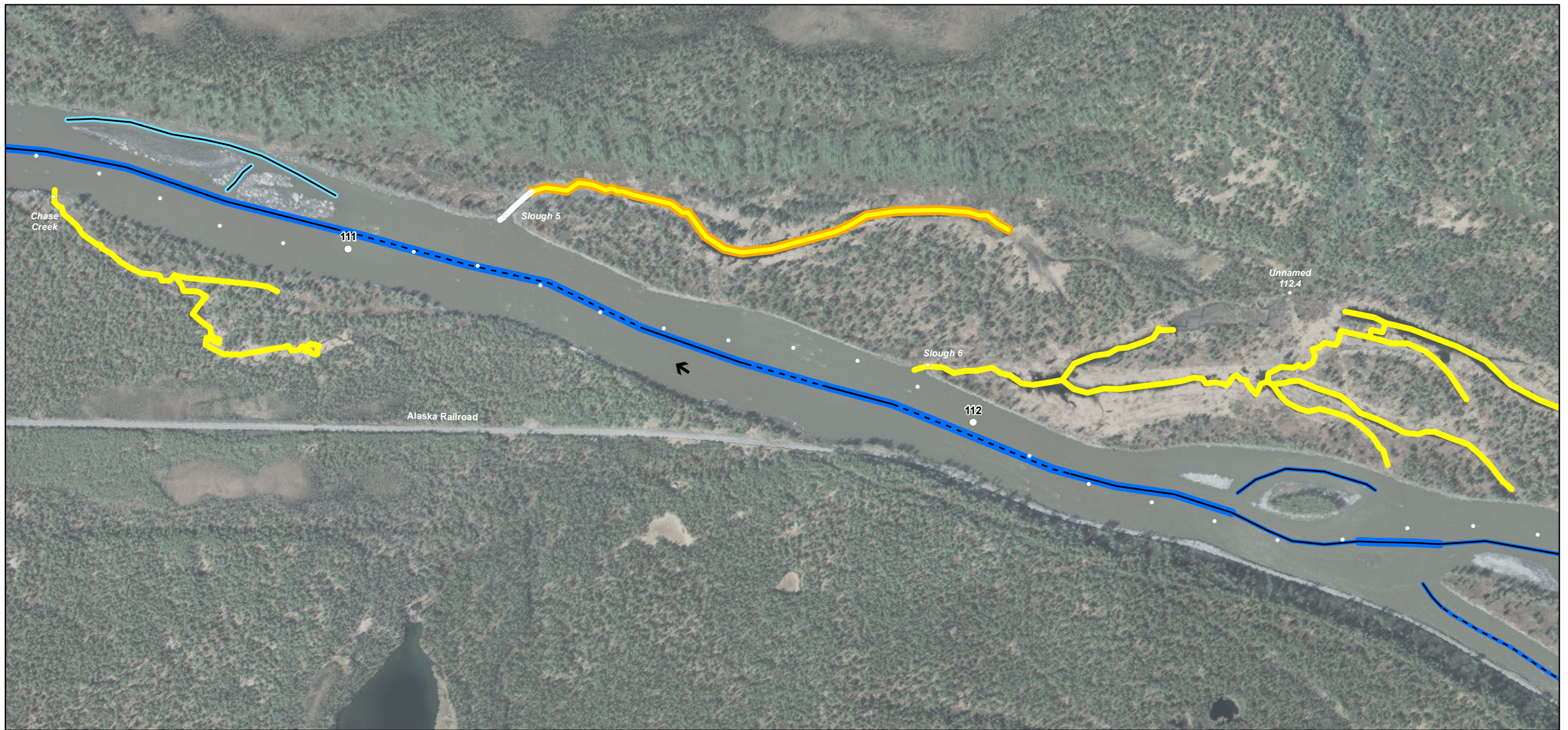
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

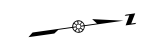
**Macrohabitat (2012)**

- Main Channel
- - - Split Main Channel
- · - · - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

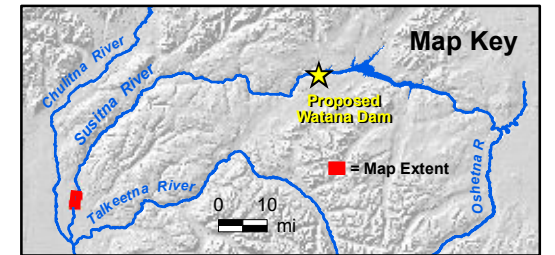
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

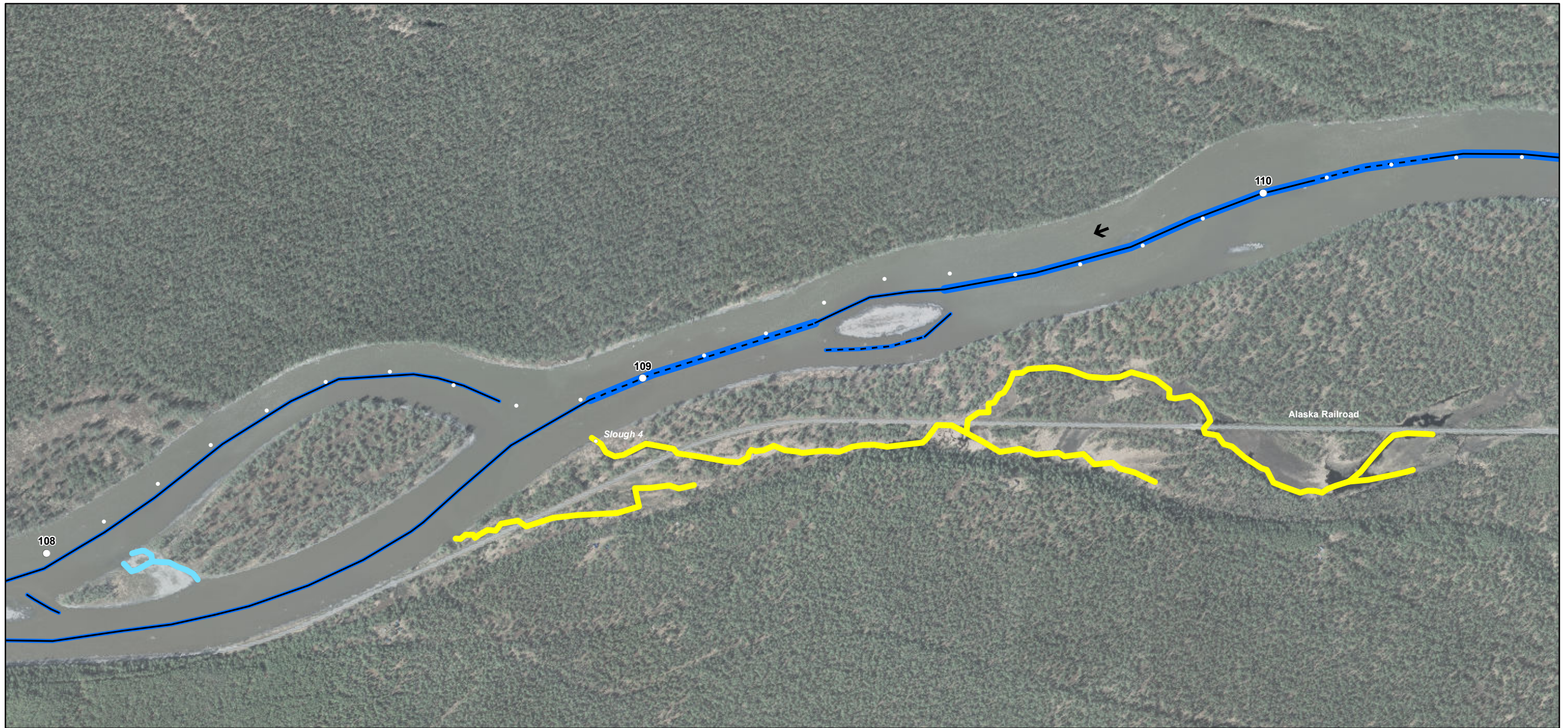
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



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Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- - - Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

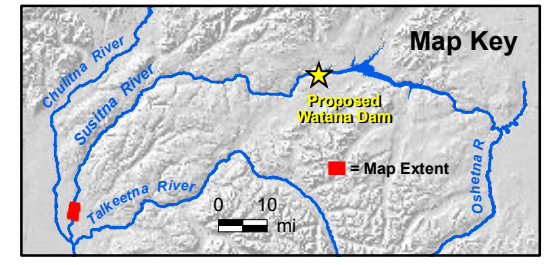
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- - - Rapid
- - - Riffle
- Run/Glide
- Pool

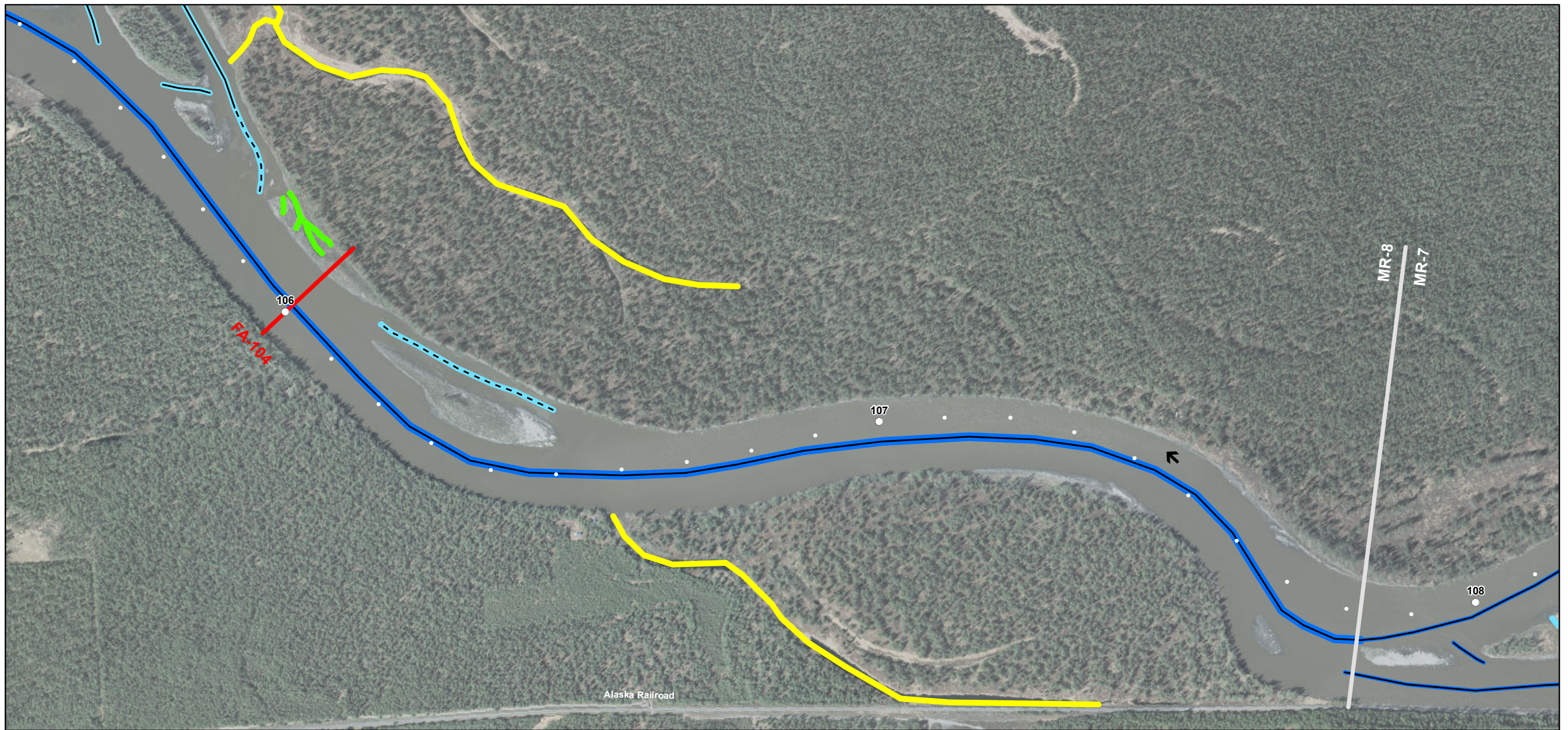
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

**Map 52 of 55**





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

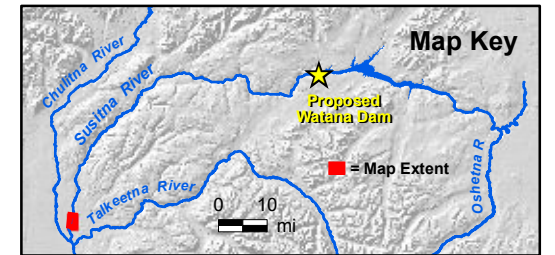
- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

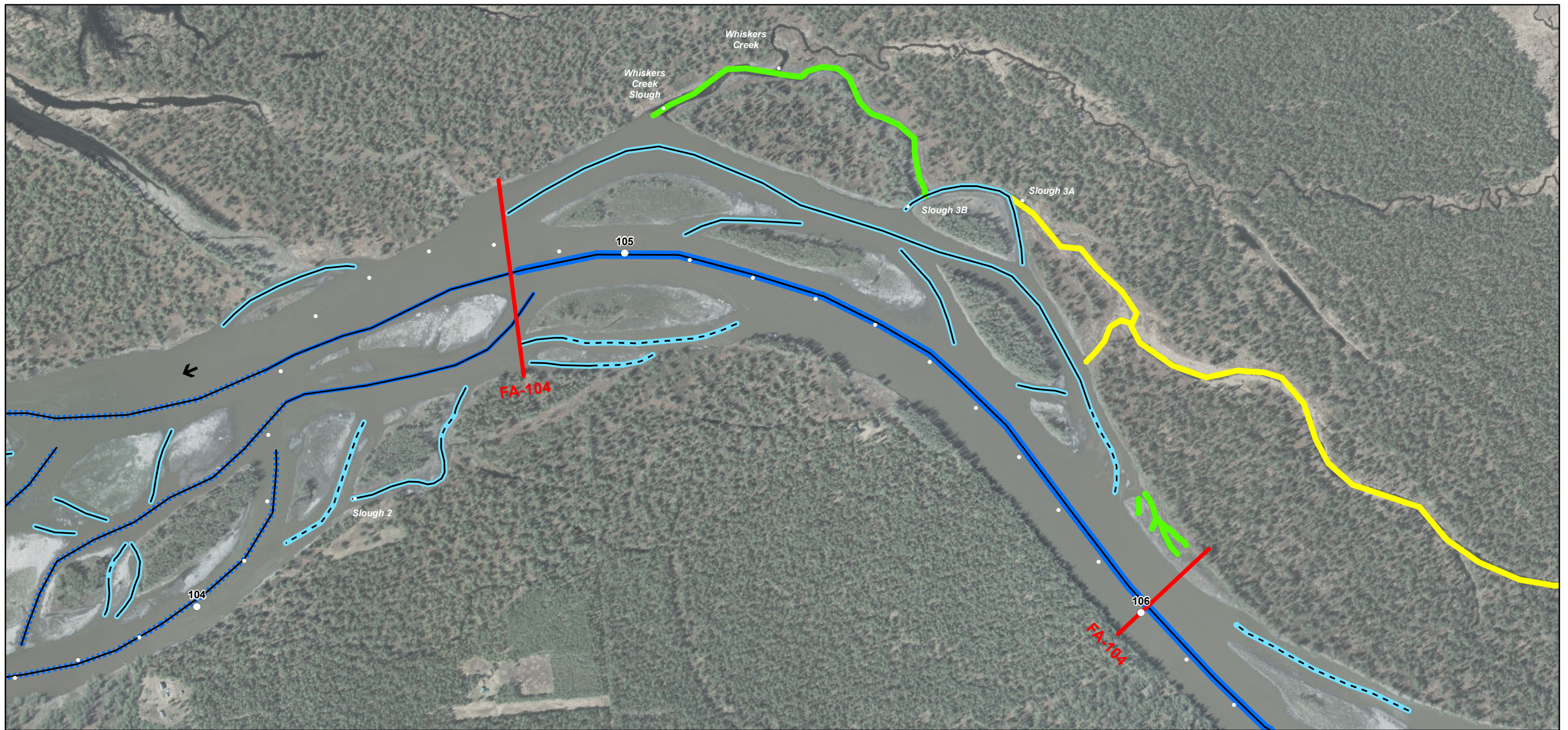
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

**Map 53 of 55**





**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

**Mesohabitat (2012)**

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*
- Rapid
- Riffle
- Run/Glide
- Pool

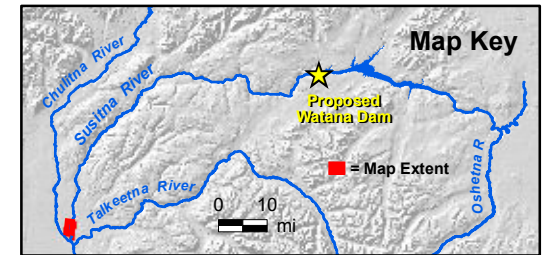
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



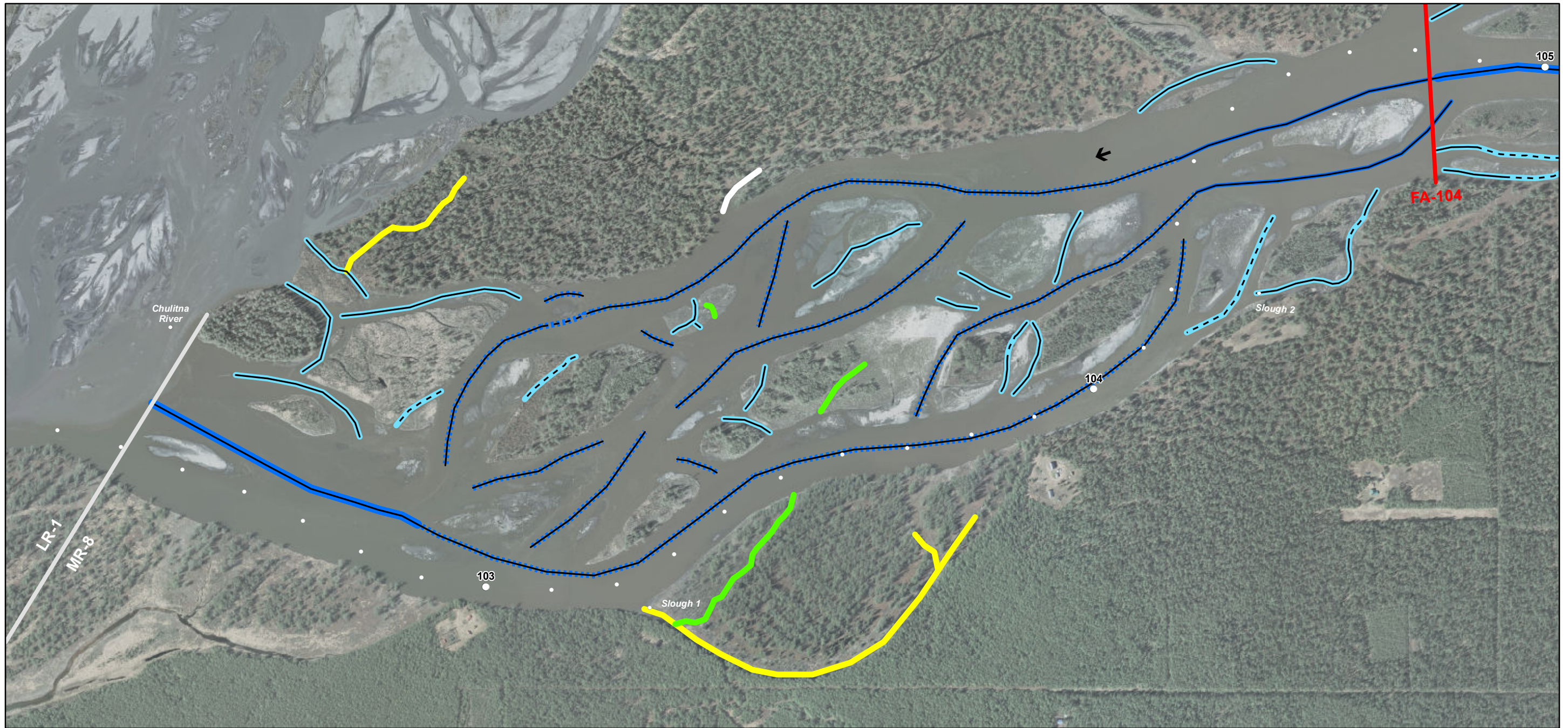
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Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

**Map 54 of 55**







**Legend**

- Instream Flow Focus Area (Upper and Lower Extent)
- Geomorphic Reach
- Project River Mile
- ← Flow Arrow

**Macrohabitat (2012)**

- Main Channel
- Split Main Channel
- Multiple Split Main Channel
- Side Channel
- Side Slough

- Upland Slough
- Tributary Mouth
- Clearwater Plume\*
- Backwater\*
- Beaver Complex\*

**Mesohabitat (2012)**

- Rapid
- Riffle
- Run/Glide
- Pool

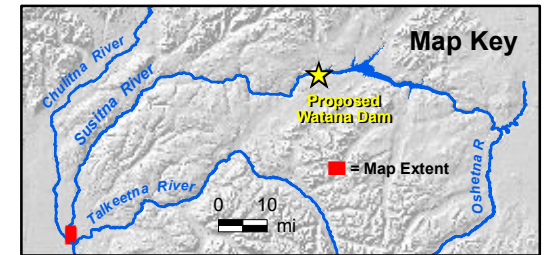
\* FERC Study Plan Determination April 1, 2013 changed to mesohabitats.



0 1,000 Feet

Projection: AK SP Zone 4 NAD 1983  
 Date Created: 11/10/2014  
 Map Author: R2 - Joetta Zabolney  
 File: Map\_ISR\_FA\_AQHAB\_MS12.mxd

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Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project