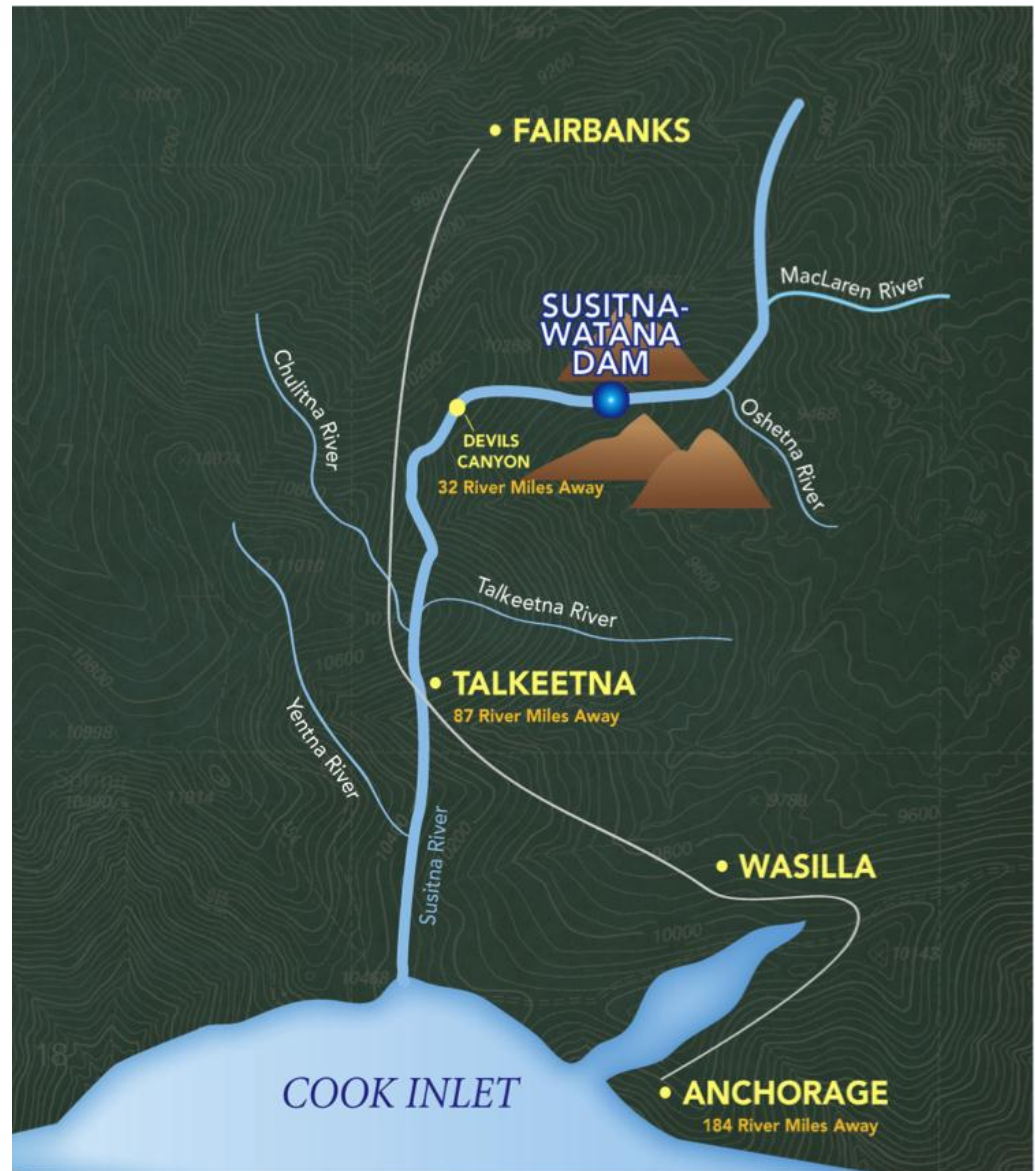


Groundwater Instream Flow Revised Study Plan

Technical Work Group Meeting

October 24, 2012

Prepared by GW Scientific



Groundwater Aquatics Instream Flow Revised Study Plan

Today's Topics:

1. Groundwater Comments
2. PSP vs RSP: Additional Content
3. Project Schedule
4. Interdependencies
5. Recent field Observations



Slough 8A, Looking Upstream, 10/12/2012

Groundwater Aquatics Comments

1. Request for more detail

- ✓ Well placement approach and sampling design (ADFG)
- ✓ Sampling intensity and scale (ADFG)
- ✓ Duration of monitoring (ADFG)
- ✓ Calibration checks for groundwater program (ADFG)
- ✓ Integration with biological studies (USFWS)
- ✓ Hydraulic gradients under current conditions and proposed operations (USFWS)



Slough 8A, Surveying Water Levels in upland slough by tracks, 10/22/2012

Groundwater Aquatics Comments

1. Request for more detail

- ✓ Methods to deal with number of focus areas (USFWS)
- ✓ How to address limited number of growing seasons for plants (USFWS)
- ✓ Impacts of precipitation on riparian vegetation and lack of data (USFWS)
- ✓ Water-level statistics for plant response curves (USFWS)
- ✓ Water-level and gradient statistics (USFWS)



Susitna River, Near Whiskers Slough (ESS40),
Looking Upstream, 10/21/2012

Groundwater Aquatics

PSP vs RSP

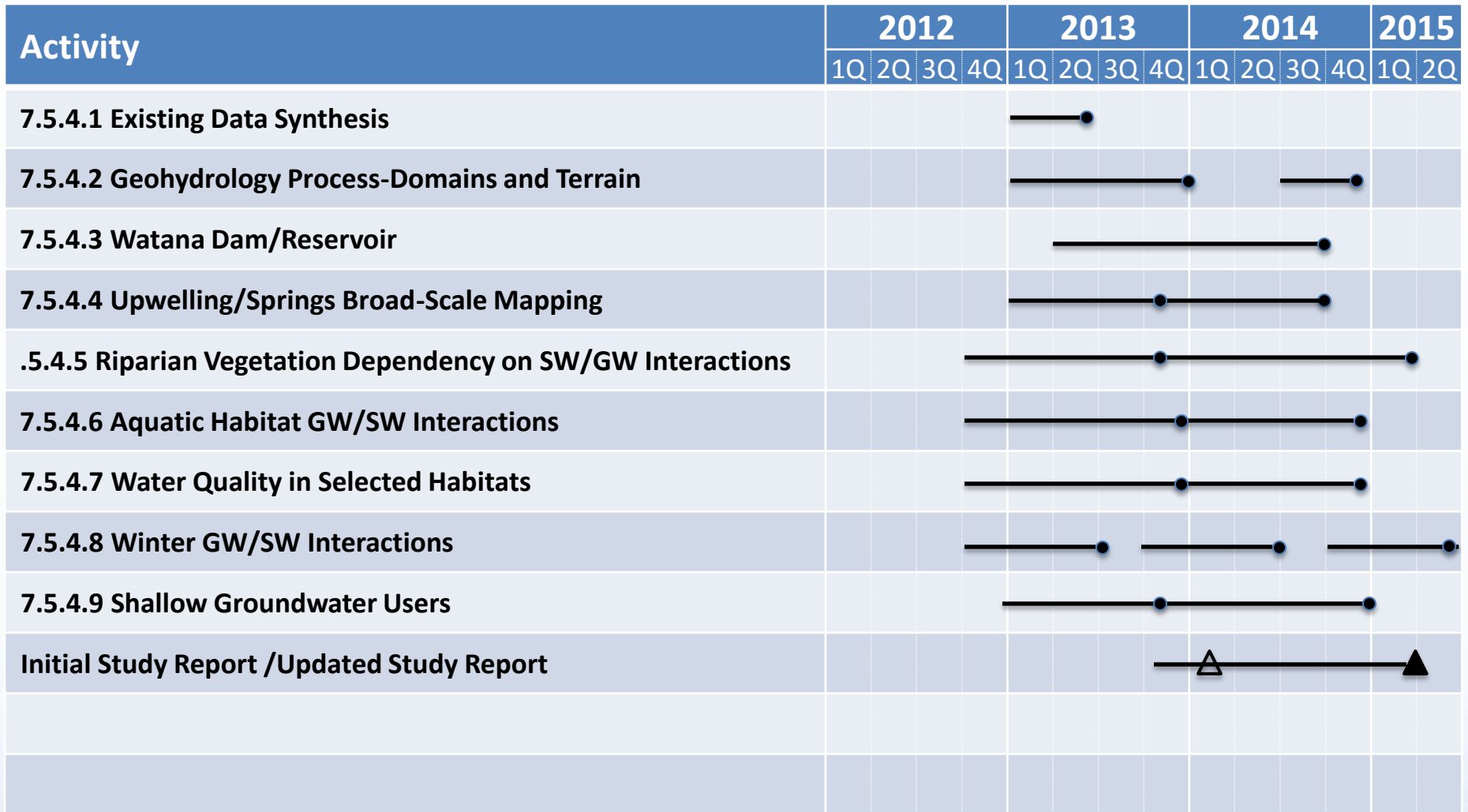
Additional Content

1. Additional Detail on Methods
2. Movement of details from Riparian Section
3. Additional Detail Modeling Methods and Standards
4. Interdependencies and Schedule

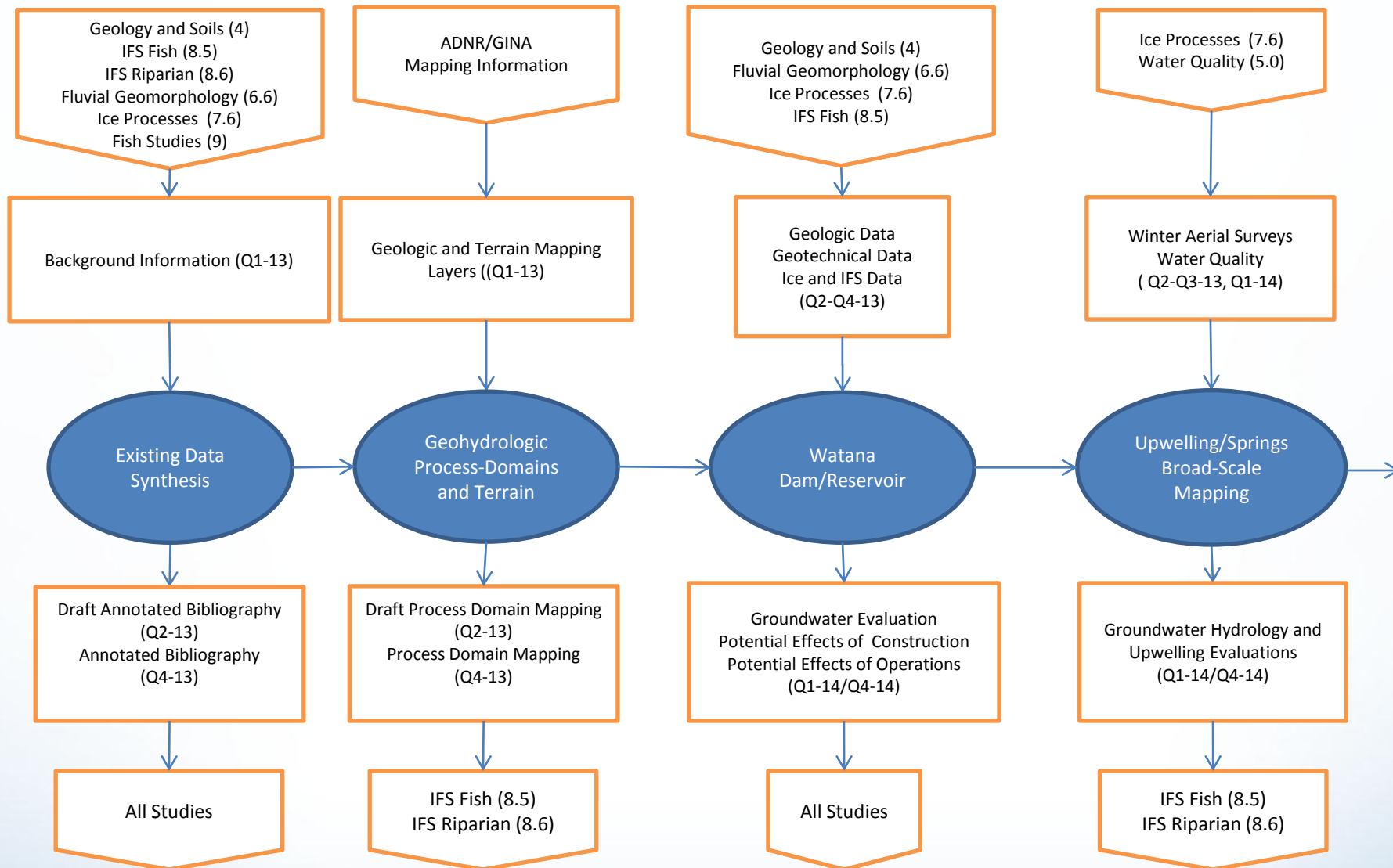


Slough 8A, Surveying Winter Water Levels,
10/22/2012

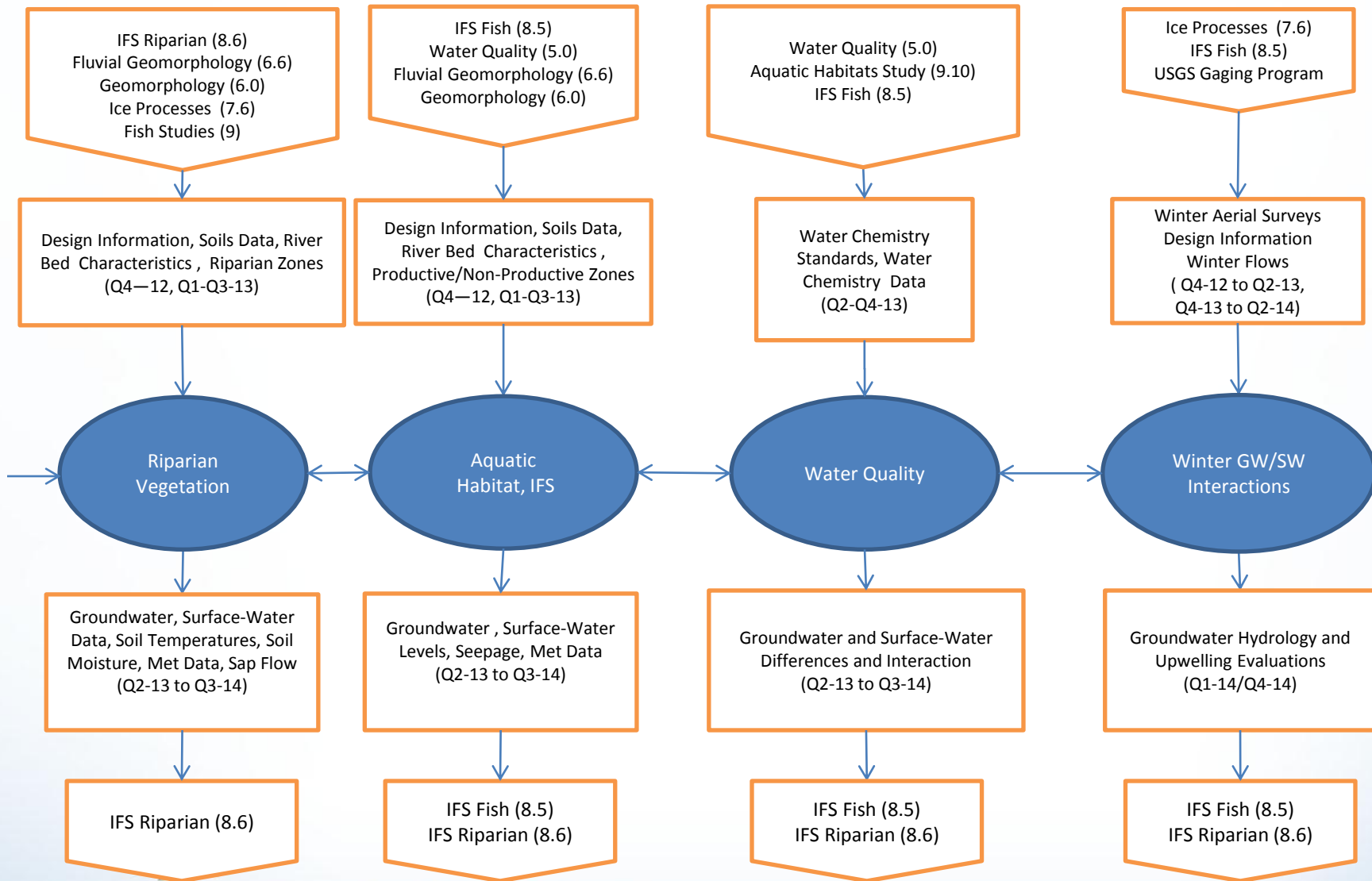
Groundwater Aquatics Study Schedule



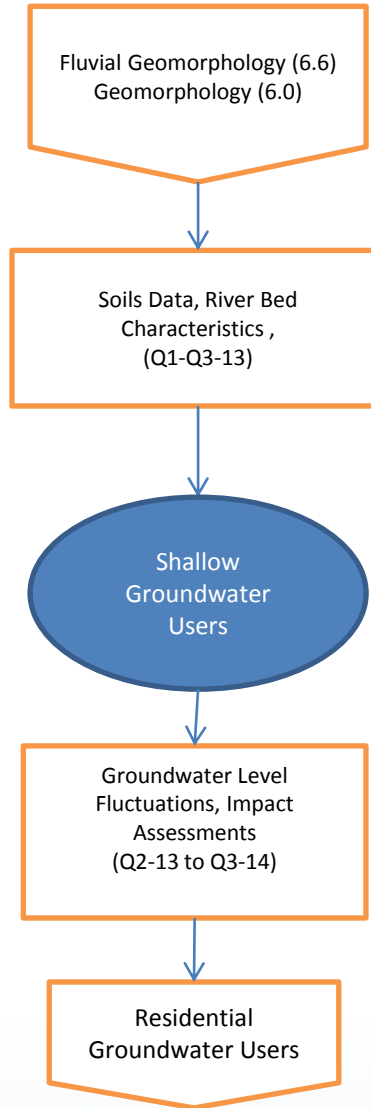
STUDY INTERDEPENDENCIES FOR GROUNDWATER-RELATED AQUATIC HABITAT STUDY



STUDY INTERDEPENDENCIES FOR GROUNDWATER-RELATED AQUATIC HABITAT STUDY



STUDY INTERDEPENDENCIES FOR GROUNDWATER-RELATED AQUATIC HABITAT STUDY



Groundwater Aquatics

Recent Field Observations

1. Groundwater seepage from river banks form observable icing features
2. Icing observations help inform about groundwater seepage areas



Susitna River Near Cantwell (ESS80) Gage, Looking Upstream, 10/19/2012

Focus Area 2: RM 171-172



Legend

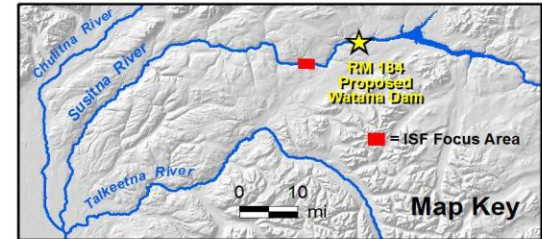
- Instream Flow Focus Area (Upper and Lower Extent)
- Flow Arrow
- River Mile Index (1981)



0 1,000
Feet

Projection: Alaska Albers NAD 1983
Date Created: 10/17/2012
Map Author: R2 - Joetta Zabloutney
File: Map_PSP_ISF_FocusAreas.mxd

Data Sources: See Map References
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project



Focus Area 2: RM 171-172

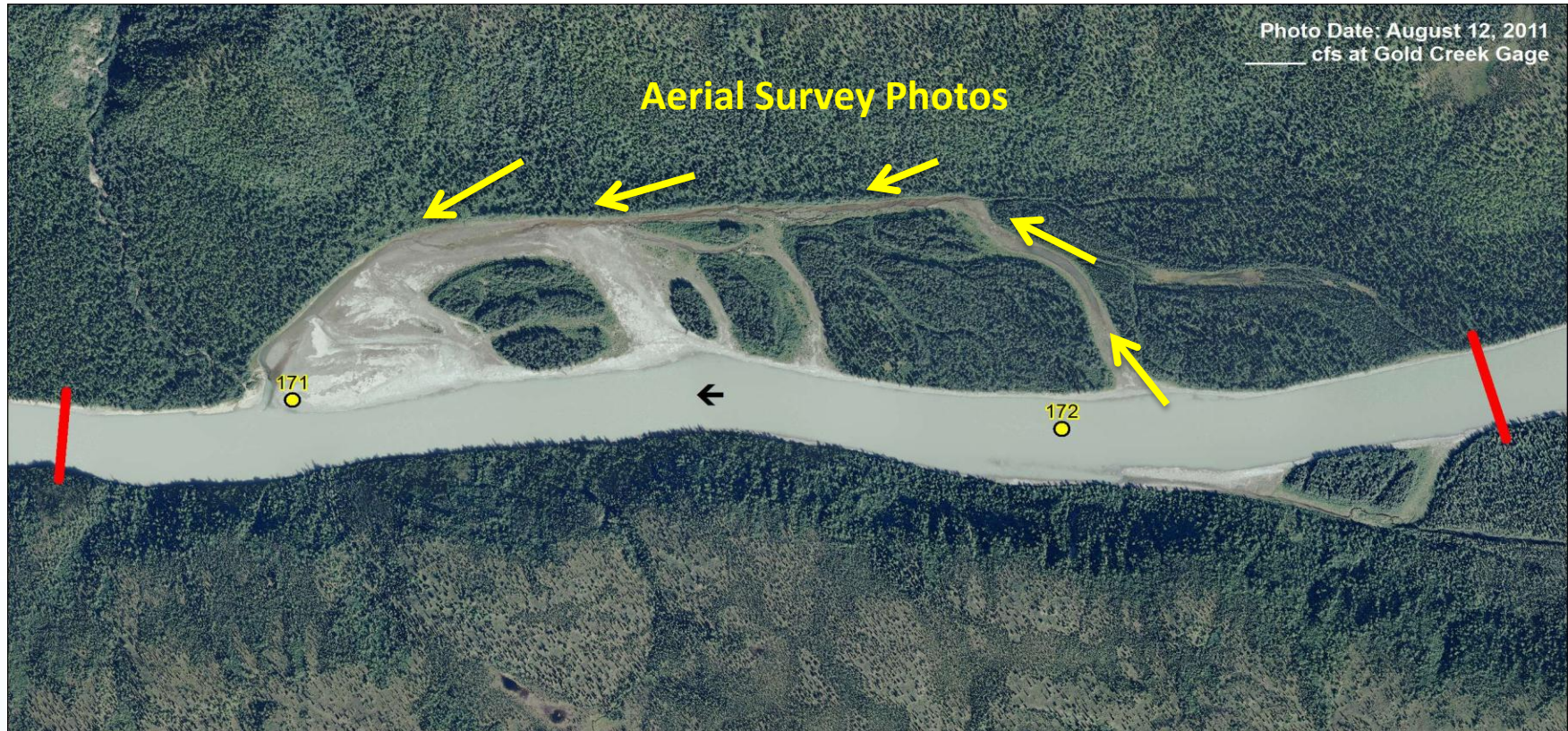





Photo Date: August 12, 2011
 _____ cfs at Gold Creek Gage

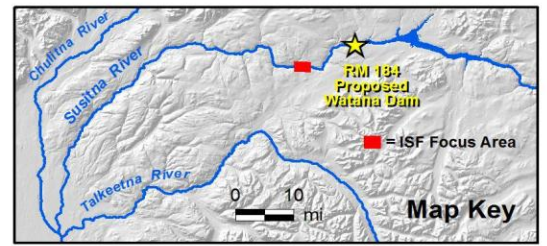
Aerial Survey Photos

Legend

-  Instream Flow Focus Area (Upper and Lower Extent)
-  Flow Arrow
-  River Mile Index (1981)



Projection: Alaska Albers NAD 1983
 Date Created: 10/17/2012
 Map Author: R2 - Joetta Zabloutney
 File: Map_PSP_ISF_FocusAreas.mxd



Data Sources: See Map References
 Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

Groundwater Aquatics

Recent Field Observations

1. Focus Area 2, RM 171-172
2. Riparian ice impacts field visit 10/10/12
3. Early winter recon, 10/20/12
4. Some channels still open



Early Winter Recon, Upstream Side Channel
10/20/2012

Groundwater Aquatics

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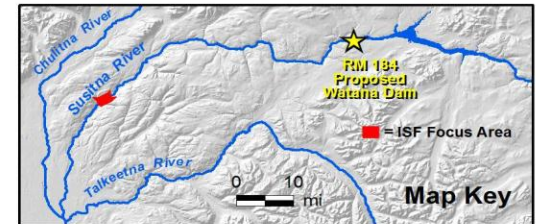
Early Winter Recon, Upstream Side Channel
10/20/2012

Focus Area 8, Slough 8A: RM 124-126



Legend

- Instream Flow Focus Area (Upper and Lower Extent)
- Flow Arrow
- River Mile Index (1981)



Data Sources: See Map References
Orthophoto Source: 2011 Matanuska-Susitna Borough LiDAR & Imagery Project

Projection: Alaska Albers NAD 1983
Date Created: 10/17/2012
Map Author: R2 - Joetta Zablotney
File: Map_PSP_ISF_FocusAreas.mxd

Slough 8A 1980's Monitoring Wells



80s Slough 8A Wells Georeferenced on Current Imagery, Joetta Zabloutney , 10/10/2012

Groundwater Aquatics

Recent Field Observations

1. 80s Geohydrology Study Wells
 - ✓ Drive Point Methods
 - ✓ Galvanized Pipe
 - ✓ Slough 8A, Slough 9
2. Slough and Side Channel Icing and Flow Conditions
3. Installation of Cameras in Coordination with Ice Studies



Kevin Fetherston, R2

80s Drive-Point Well in Slough 8A,
10/12/2012

Focus Area 8, Slough 8A



Groundwater Aquatics

Thank You for PSP Input

Questions?



October 3, 2012 Field Visit to Slough 8A