

RECLAMATION

Managing Water in the West

Henry's Fork Basin Study ***January 10, 2012***

In Cooperation with:
Idaho Water Resource Board



and



U.S. Department of the Interior
Bureau of Reclamation

Henry's Fork Watershed Council

Basin Study Update

- **Study Process & Draft Schedule**
- **Needs Assessment**
- **Status of Reconnaissance Evaluations**
- **Wrap Up**

Study Process & Draft Schedule

Interim Report – July 2012

- Introduction and Needs
- Background and Selection of Reconnaissance Alternatives
- Technical Memo for Each Reconnaissance Evaluation
- Formulation of Appraisal Alternative

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Study Process & Draft Schedule

- Jan 31st – Draft TM Package
- Feb 14th – Workgroup Meeting – Questions / Comments / Input
- Mid – Late March – Final Package of TMs
- March 13th – Workgroup Meeting – Begin Formulation of Appraisal Level Alternative
- April 10th – Workgroup Meeting – Develop Appraisal Level Alternative
- July 2012 – Finalize Appraisal Alternative & Interim Report

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Need Assessment

Undergoing Final Draft Edit

- **Technical Information Complete**
- **Writing Document**
 - ✓ better “tell the story”
 - ✓ to inform outside groups
- **Technical Handout of Needs Assessment**

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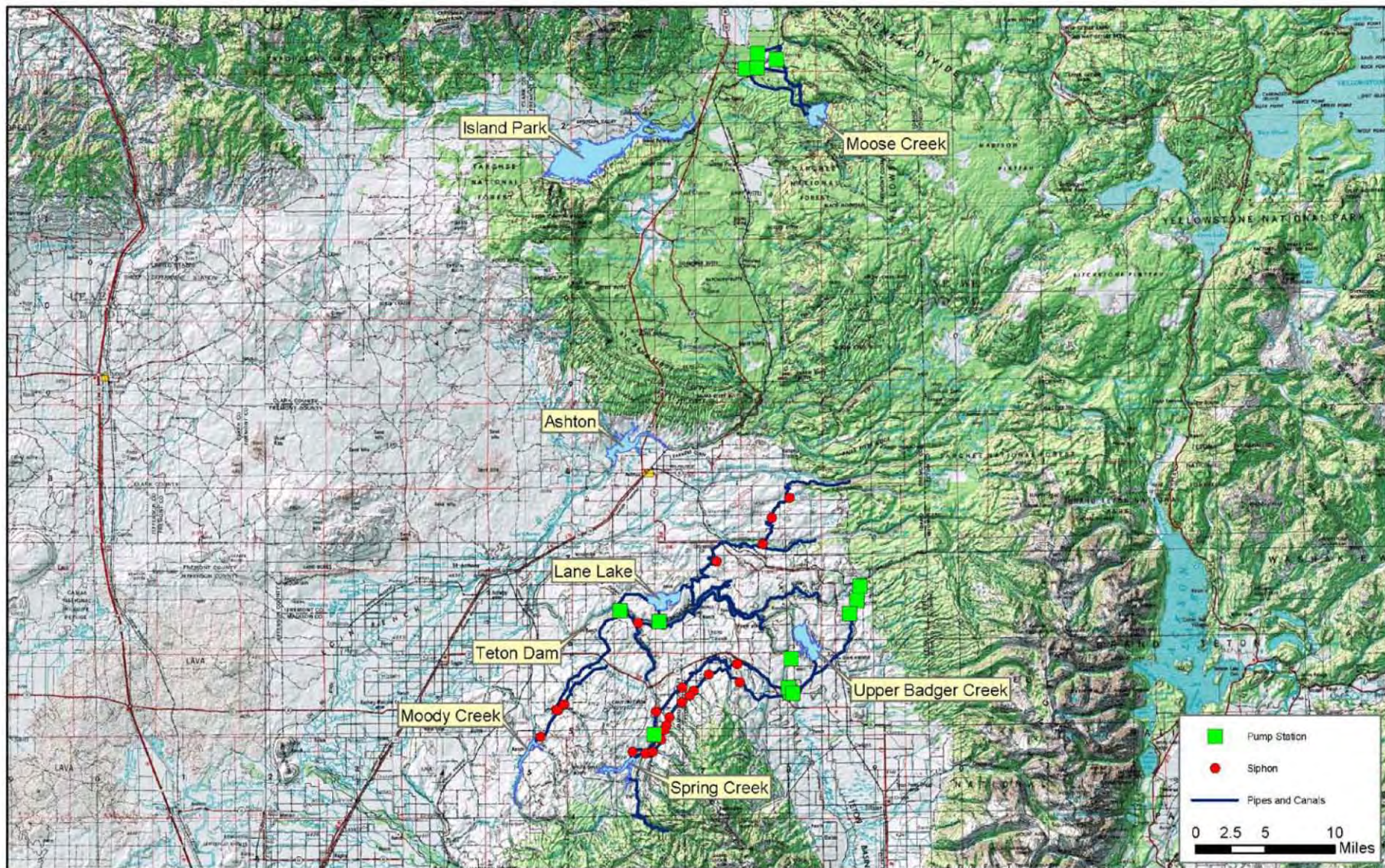
Status of Reconnaissance Evaluations

- CH2M HILL Status
 - Storage Reservoirs
 - Recharge Alternatives
 - Municipal Conservation
 - Marketing Alternatives
- Reclamation Status
 - Conservation Alternatives
 - Teton Dam

Surface Storage Alternatives

- Lane Lake
- Spring Creek (Canyon Creek)
- Moody Creek
- Upper Badger Creek
- Teton Dam
- Island Park Enlargement with Crosscut Canal Enlargement
- Ashton Dam Enlargement with Crosscut Canal Enlargement
- Moose Creek with Crosscut Canal Enlargement

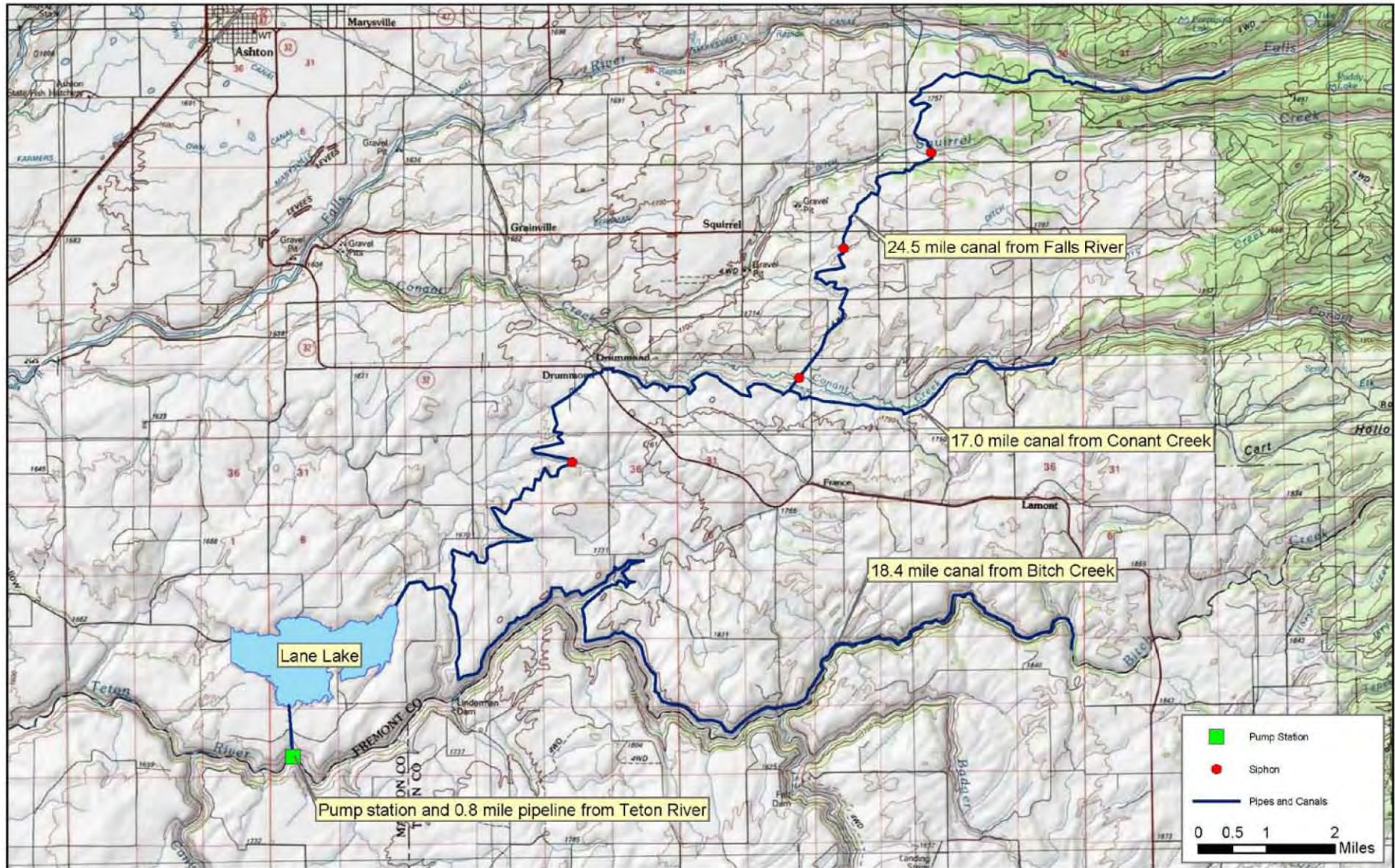
Surface Storage Alternatives – Overview Map



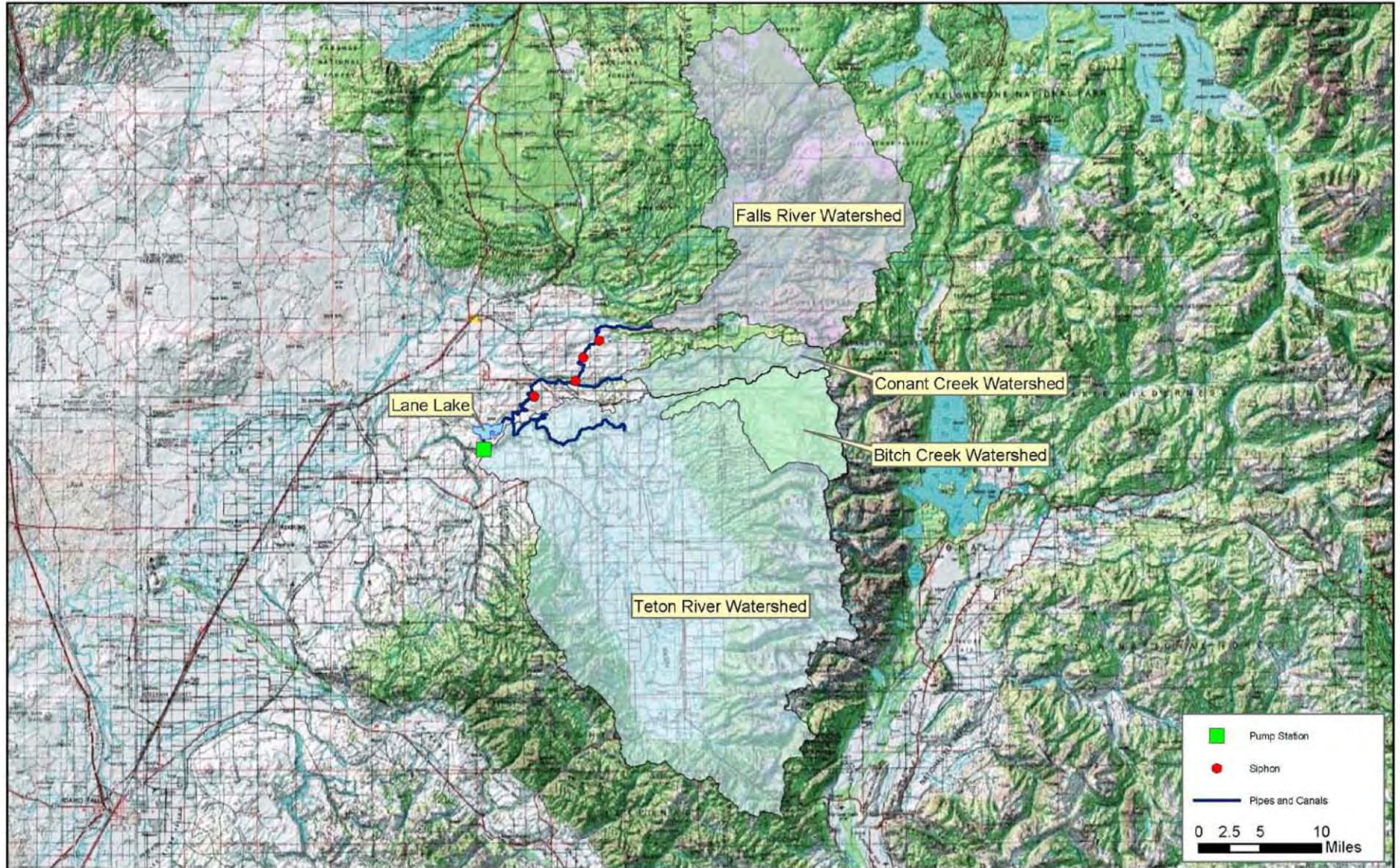
Surface Storage Alternatives

- Geologic review completed
- Hydrologic analyses completed
- Preliminary dam, conveyance, appurtenant facility layouts completed

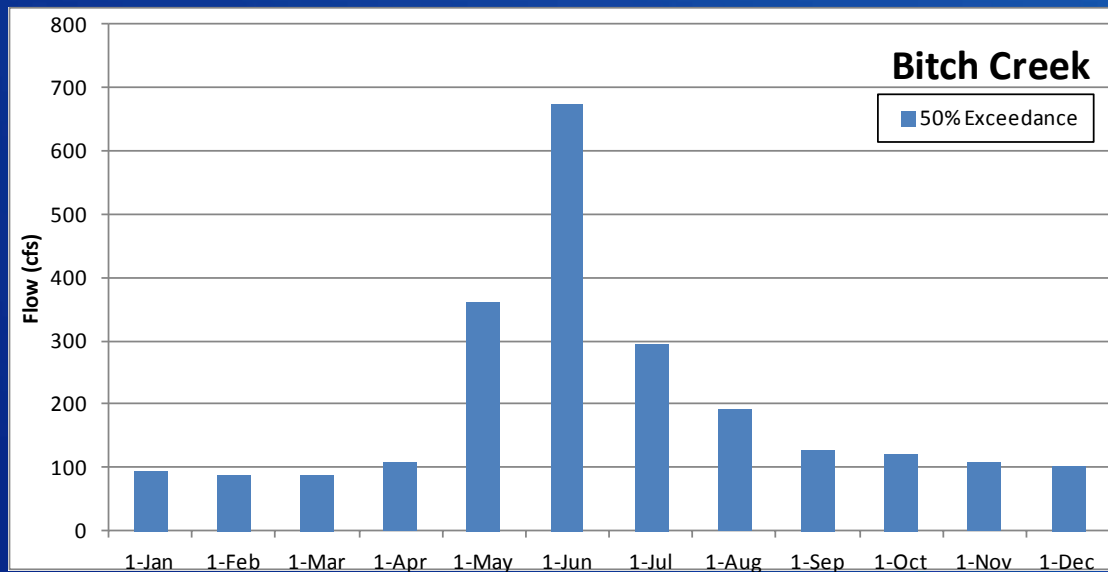
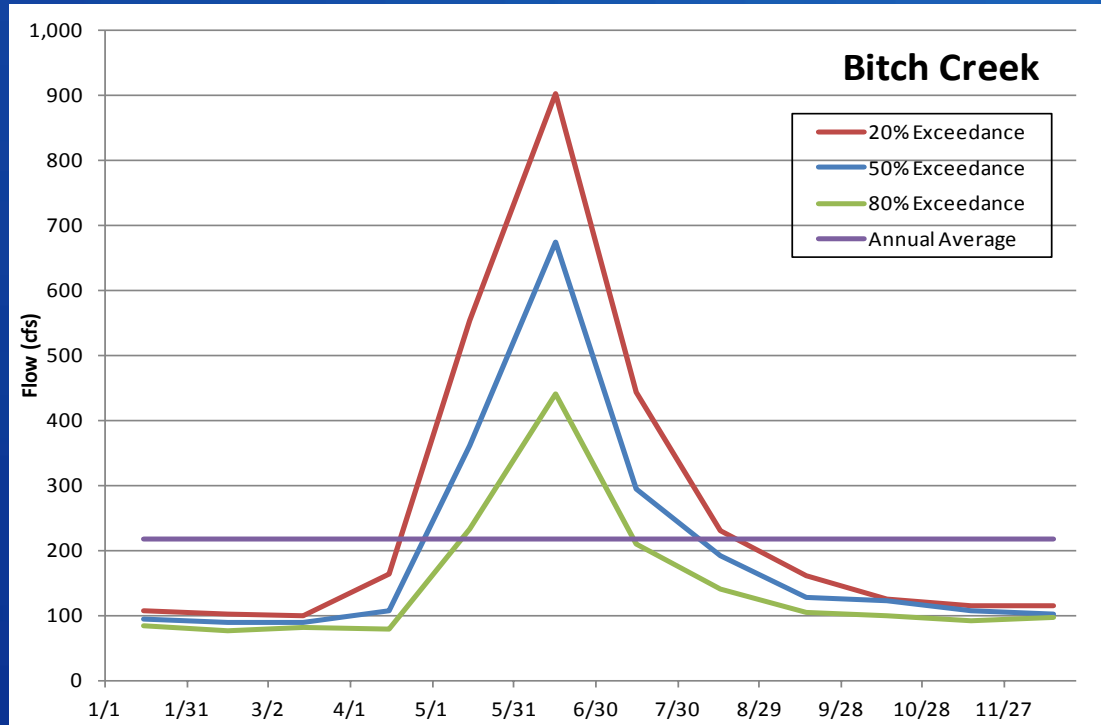
Lane Lake Example Analysis – Water Sources and Conveyance



Lane Lake Example Analysis – Hydrology

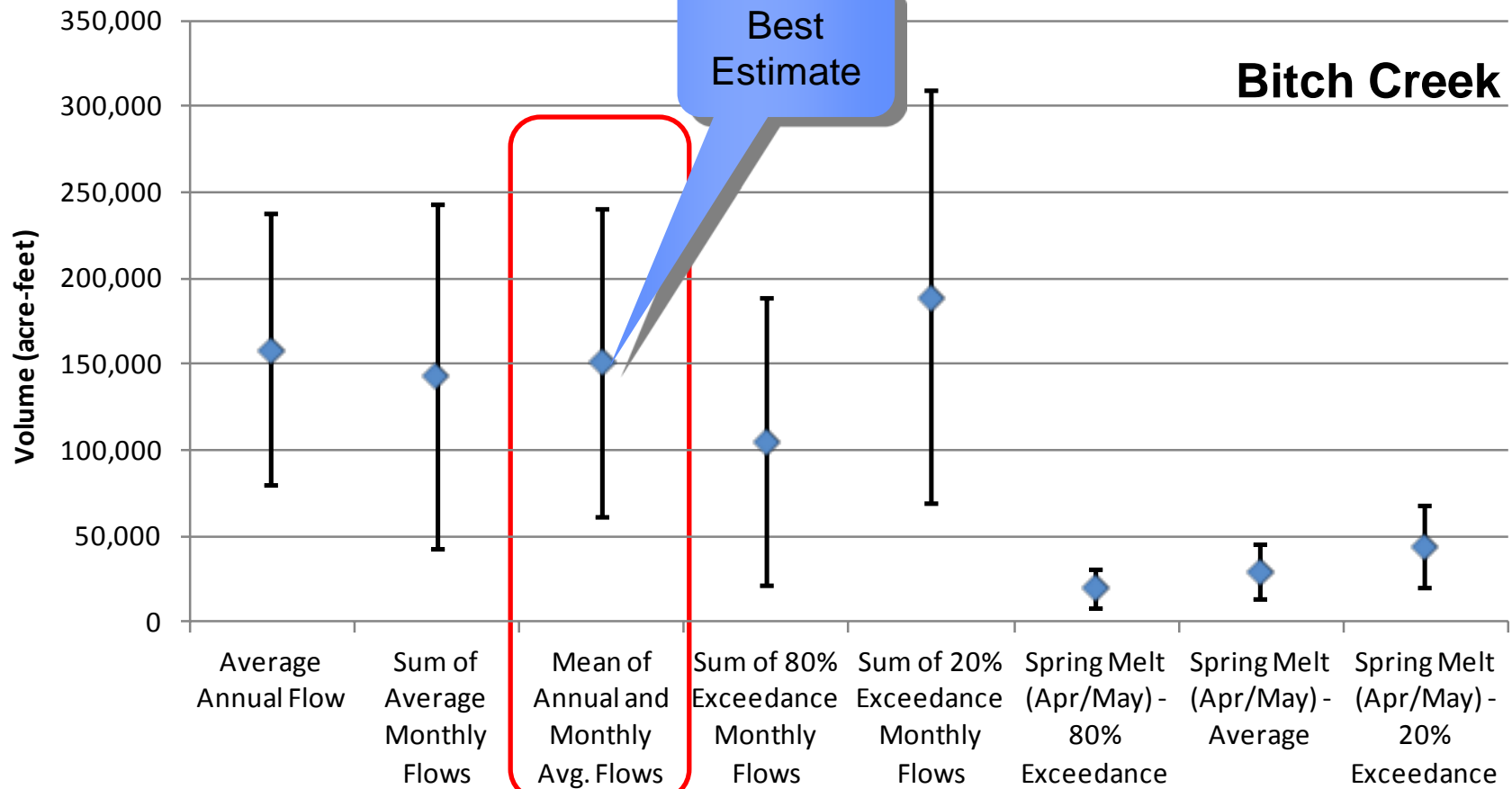


Lane Lake Example Analysis – Hydrology



Lane Lake Example Analysis – Hydrology

Regression-Based Estimate and Standard Error Range



Surface Storage Alternatives - Next Steps

- Finalize dam footprint and dimensions
- Finalize water supply sources and routes
- Size conveyance features
- Estimate quantities and develop cost estimates
- Characterize potential environmental impacts – special status species, wetlands, infrastructure, river designations, and connectivity.

Surface Storage Alternatives - Next Steps, cont.

- Evaluate Crosscut Canal expansion
- Identify legal, institutional, and policy constraints
- Assess ability to meet basin needs
- Compile Technical Memos

Managed Groundwater Recharge Alternatives

- Acquired Egin Basin recharge program data (2008 to 2011) from IDWR and FMID
- Using IWRRI ESPA recharge model for evaluation of increased recharge to Egin Lakes
- Evaluating a new potential recharge site near Sugar City

Managed Recharge Alternatives - Next Steps

- Complete modeling for the following scenarios:
 - Increased recharge at Egin Lakes
 - Recharge in the Lower Teton
- Evaluate conveyance infrastructure requirements for recharge scenarios
- Compare Egin Lakes expansion to other state recharge opportunities

Managed Recharge Alternatives - Next Steps

- Characterize potential environmental impacts
- Develop cost estimates
- Identify legal, institutional, and policy constraints
- Assess ability to meet basin needs
- Compile Technical Memos

Municipal and Industrial Conservation Alternatives

- Enlisted Cities of Driggs, Victor, and Idaho Falls to participate in evaluation
- Cities providing data regarding water usage, water master plans, other info
- Researching conservation options for reducing water consumption:
 - Metering
 - Reuse
 - Dual pipe systems
 - Landscaping demand reduction

Municipal and Industrial Conservation Alternatives – Next Steps

- Estimate future demands for each municipality
- Make estimates of water savings through implementation of conservation options
- Develop cost estimates
- Identify legal, institutional, and policy constraints
- Assess ability to meet basin needs
- Develop Technical Memo

Evaluate Existing and Potential Market-Based Mechanisms

- WestWater reviewing water market regions in the western U.S. to determine which to select as case studies for presentation
- Market regions are being selected based, in part, upon economic comparability to the Henrys Fork. As a result, market regions heavily influenced by urban buyers are being excluded from consideration.

Evaluate Existing and Potential Market-Based Mechanisms – Next Steps

- Select 3 to 5 market regions
- Characterize market activity, pricing, market drivers for each market region
- Market examples used to illustrate economic, physical, and regulatory factors necessary to facilitate market development.
- Factors to be compared to conditions in the Henrys Fork to assess opportunities and challenges for further market development in the region

Conservation Alternatives

- Recharge w/ Existing Canals
- Canal Automation
- On-Farm Conservation Practices
- Piping and Lining
- Demand Reduction

Conservation Alternatives

Evaluation Procedure – Dr. Van Kirk's Model

- Peer Reviewed by CH2M HILL
- Model Complete for Teton Watershed
 - transferred to Reclamation
- Model Near Completion for HF
 - groundwater interaction remains

Conservation Alternatives

- Recharge w/ Existing Canals
 - increase flows at diversions
- Canal Automation - Simulation
 - reduce diversions in early season
 - regional irrigation scheduling

Conservation Alternatives

- On-Farm Conservation Practices –
Conversion Flood to Sprinkler
- Piping and Lining
- Demand Reduction

All will reduce diversion and reduce seepage, but have different costs

Conservation Alternatives

Preliminary Costs

- Center Pivot Systems – per acre \$1,000-\$1,200 installation cost plus annual costs
- Canal Automation – Average Sunnyside Valley Irrigation District costs (2011) at \$380,000 per install

Teton Dam – Reclamation Report 1991

- Cost Indexing Procedure – 2010
 - “construction composite trend”
 - 43 field cost categories
 - 288,000 ac-ft Capacity

- Field Cost estimate 2010
 - \$ 590 million
 - does not include design, NEPA etc.

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Teton Dam – FMID Report 1995

- Average Annual Water Available –
 - approximately 100,000 ac-ft annually during average year
- 2 Alternatives – inflation adjusted
 - 100,000 ac-ft - field costs \$130 million
 - 50,000 ac-ft – field costs \$ 104 million

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WRAP UP, COMMENTS, QUESTIONS

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