

# Hood River Basin Planning Study

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4. Details (plan, progress, next steps)
  - A. Climate / Hydrology
  - B. Groundwater
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  - D. Water Demands
  - E. Conservation
  - F. IFIM
  - G. Water Resource Model

# Project Partners

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## 1). HRWPG

Larger group, subcommittees for last ~ 2 years

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## 2). USBR

- \$250k in-kind

- Climate / Hydrology
- Groundwater
- Storage
- Water Resource Modeling

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## 3). Hood River County

- \$250K OWRD grant

- Herrera / WPN (PM, Needs, Conservation)
- Normandau Associates (IFIM)
- Mattie Bossler (GW, overall coord.)
- USGS (GW tech. support)

# Project Objectives

1. Evaluate impact of climate change on streamflows
2. Compile all Basin water demands
3. Compile all potential water conservation measures
4. Evaluate flow targets at key stream reaches
5. Develop understanding of Basin groundwater, lay framework for future

Compile output from above into single comprehensive basin assessment

- Impacts of climate on system reliability, flow targets
- Impact of water conservation on streamflow, demands
- Can groundwater be used to meet demands
- What, if any, storage is needed

# Methods

Historic Climate

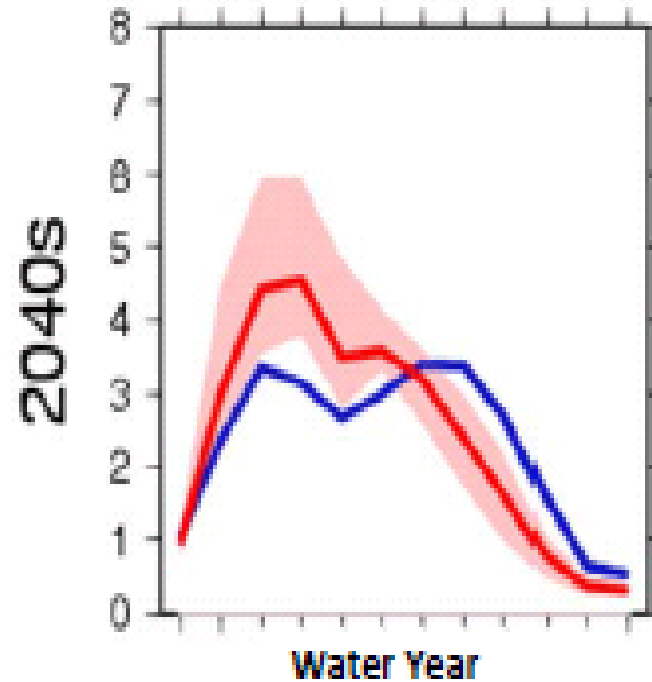


Future Climate

- River Network
- Infrastructure
- Water Demands

- Water Conservation
- Storage
- Groundwater

Combined Flow (in):

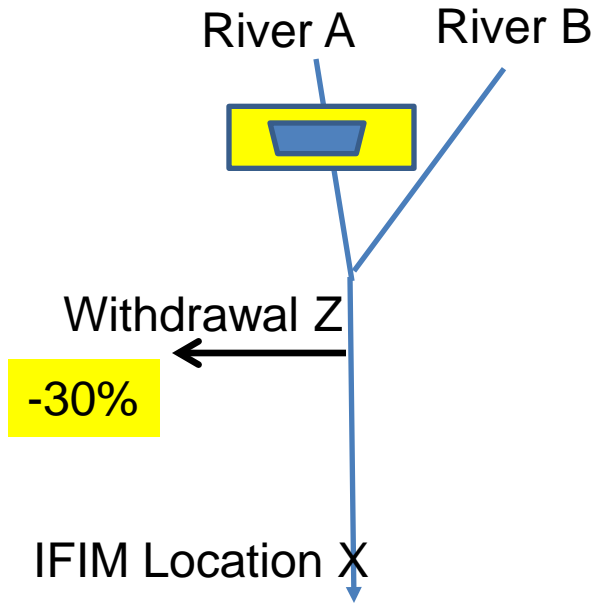


range  
conservation (Low, High?)  
reservoir?

MS  
rtfalls  
production

...

# Methods



IFIM Reach X

Flow (cfs)	W.U.A. (%)
200	10%
230	25%
260	50%
290	60%

Alternative B Model

A	B	Z (-30%)	Flow @ IFIM (-30%)	IFIM W.U.A.	IFIM W.U.A.
150			200	10%	
150	180	100	100	230	25%
				260	50%



# Details – Climate / Hydrology

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## 1). Plan

- 14 Climate Models, 2 emission scenarios
- Decades of 2020s, 2040s, 2080s
- DHSVM

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## 2). Progress

- USBR 1-week training at UW (Oct. 1)
- USBR added glacier model, calibrating to SNOTEL

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## 3). Next Steps

- Create naturalized flows
- Finish calibrating DHSVM
- Pick emission scenarios, BCSD
- Run DHSVM with GCM output
- Route to Water Resource model points

# Details – Groundwater

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## 1). Plan

- MODFLOW model of basin
- USBR receive assistance from USGS, DOGAMI
- Mattie set up GW monitoring network

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## 2). Progress

- USGS contract for technical assistance (\$20k)
- Groundwater Workshop Nov. 27 & 28
  - USBR, USGS, OWRD, DOGAMI
- Updated geologic map by DOGAMI done 12/2012
- GW well database

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## 3). Next Steps

- USBR build from GW workshop
- Implement GW monitoring network
  - Artificial Recharge?
  - Aquifer Storage and Recovery?
  - Focus on building knowledge?



# Details – Storage

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## 1). Plan

- Evaluate need for (& impact from) storage in WR model
- USBR evaluate potential sites

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## 2). Progress

- Lit. review / stakeholder input for potential sites
- Identify constraints (e.g. temp, water rights, ownership)
- USBR site visit Nov. 7 & 8

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## 3). Next Steps

- Circulate draft USBR report to HRWPG
- Based on USBR report & prelim WR model results  
→ determine which, if any, storage sites to evaluate

# Details – Water Demands

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## 1). Plan

- Herrera / WPN to compile all demands / infrastructure in basin. Will be used to build WR model.

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## 2). Progress

- WPN finishing w/ public available data

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## 3). Next Steps

- Work with USBR to determine scale for WR model
- Herrera to complete Needs Assessment (Dec/Jan)

# Details – Water Conservation

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## 1). Plan

- Herrera to evaluate potential for irrigation, municipal, industrial conservation. Also look at hydro & sediment.

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## 2). Progress

- Has not started yet.

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## 3). Next Steps

- Once draft Needs Assessment is done, start on Cons.
- Once draft Cons. Assessment is done  
→ HRWPG to choose alternatives to use in WR model

# Details – IFIM

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## 1). Plan

- Evaluate 5 reaches at 3 flow levels

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## 2). Progress

- Reach selection, HSC, transect selection (Sept. 24)
- Low flow measurements (Oct. 1)
- Medium flow measurements except one (Oct. 28)
- High flow measurements except three (Oct. 28)

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## 3). Next Steps

- Finish last flow measurements (Dec.)
- Perform PHABSIM modeling
- Submit report to HRC
- USBR use results in WR model
- USBR also use previous IFIM studies

# Details – Water Resource Model

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## 1). Plan

- Develop model of basin to evaluate climate, conservation, storage, gw, etc

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## 2). Progress

- Developed schematic of basin to build model from
- Discussed in weekly meetings

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## 3). Next Steps

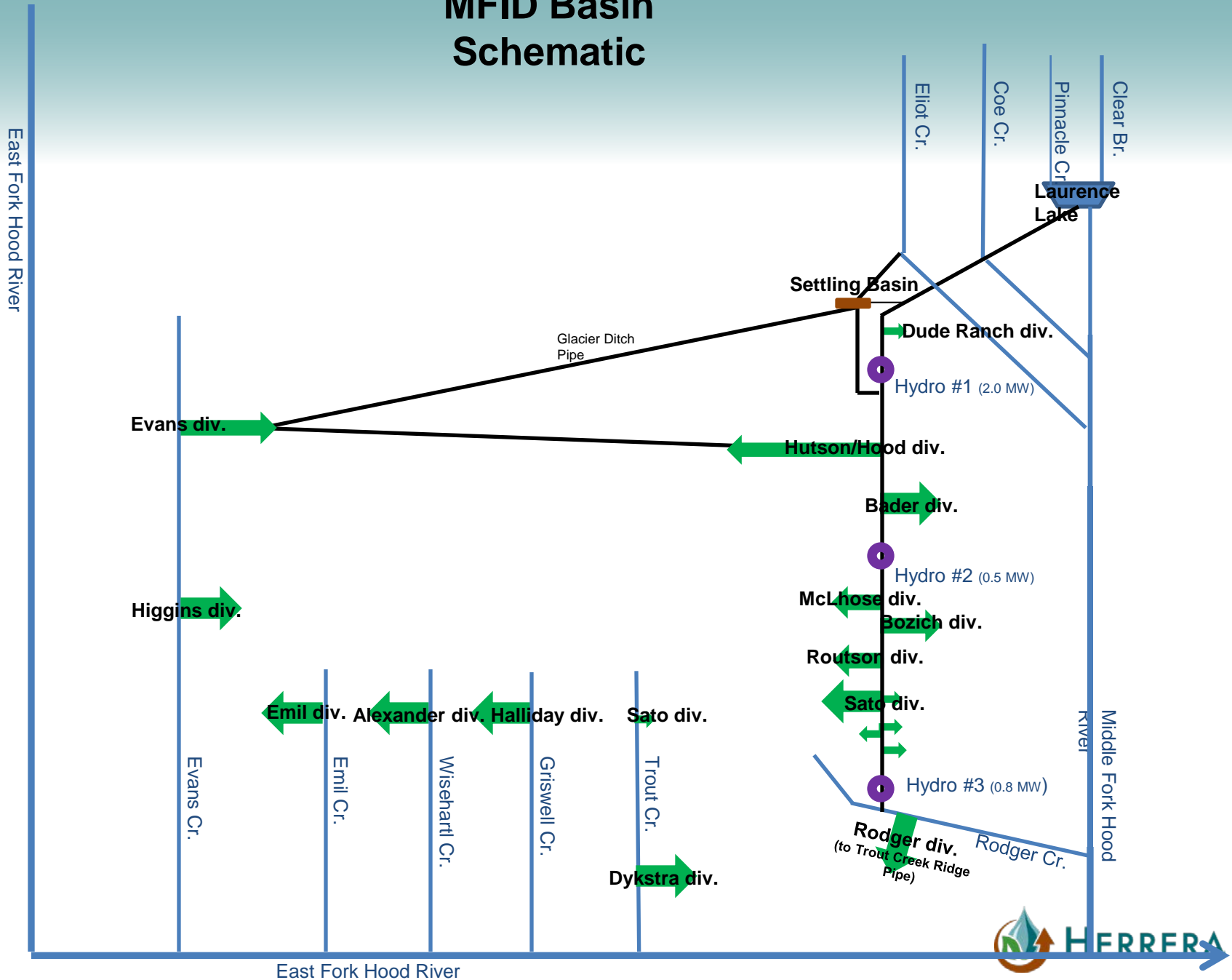
- Choose software (Riverware, Excel)
- Choose spatial/temporal scale
- USBR build model
- USBR calibrate against historical
- HRWPG pick alternatives
- USBR evaluate alternatives

# Further Information?

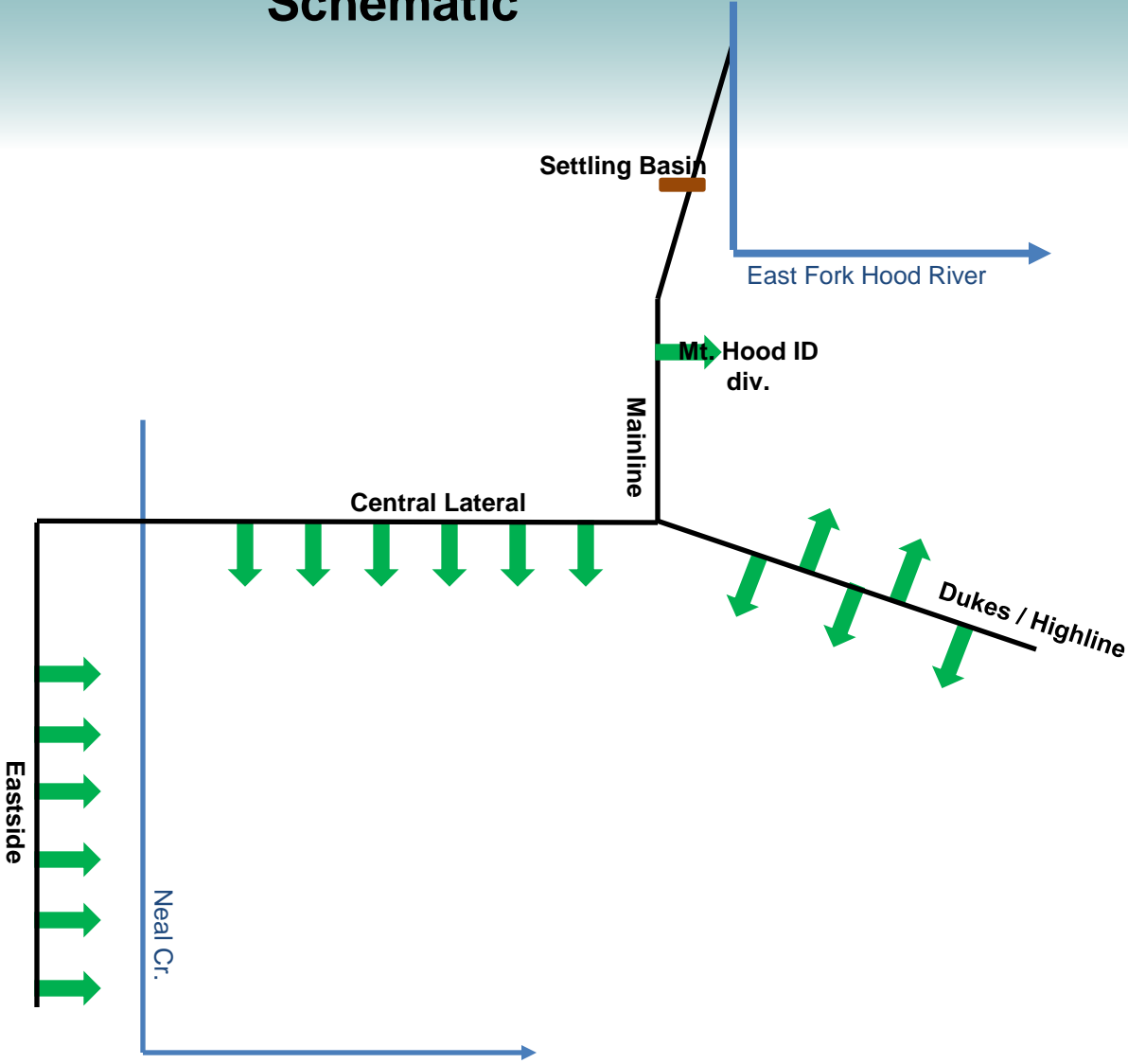
Monthly Meetings  
(1<sup>st</sup> Wednesday of Month, 2-4pm @ HR County Building)

Niklas Christensen  
nchristensen@herrerainc.com

# MFID Basin Schematic



# EFID Basin Schematic





# FID Basin Schematic

