

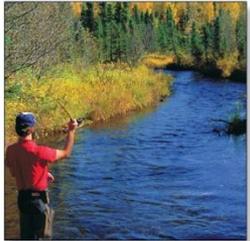
# Prioritizing ESPAM Improvements

Allan Wylie IDWR

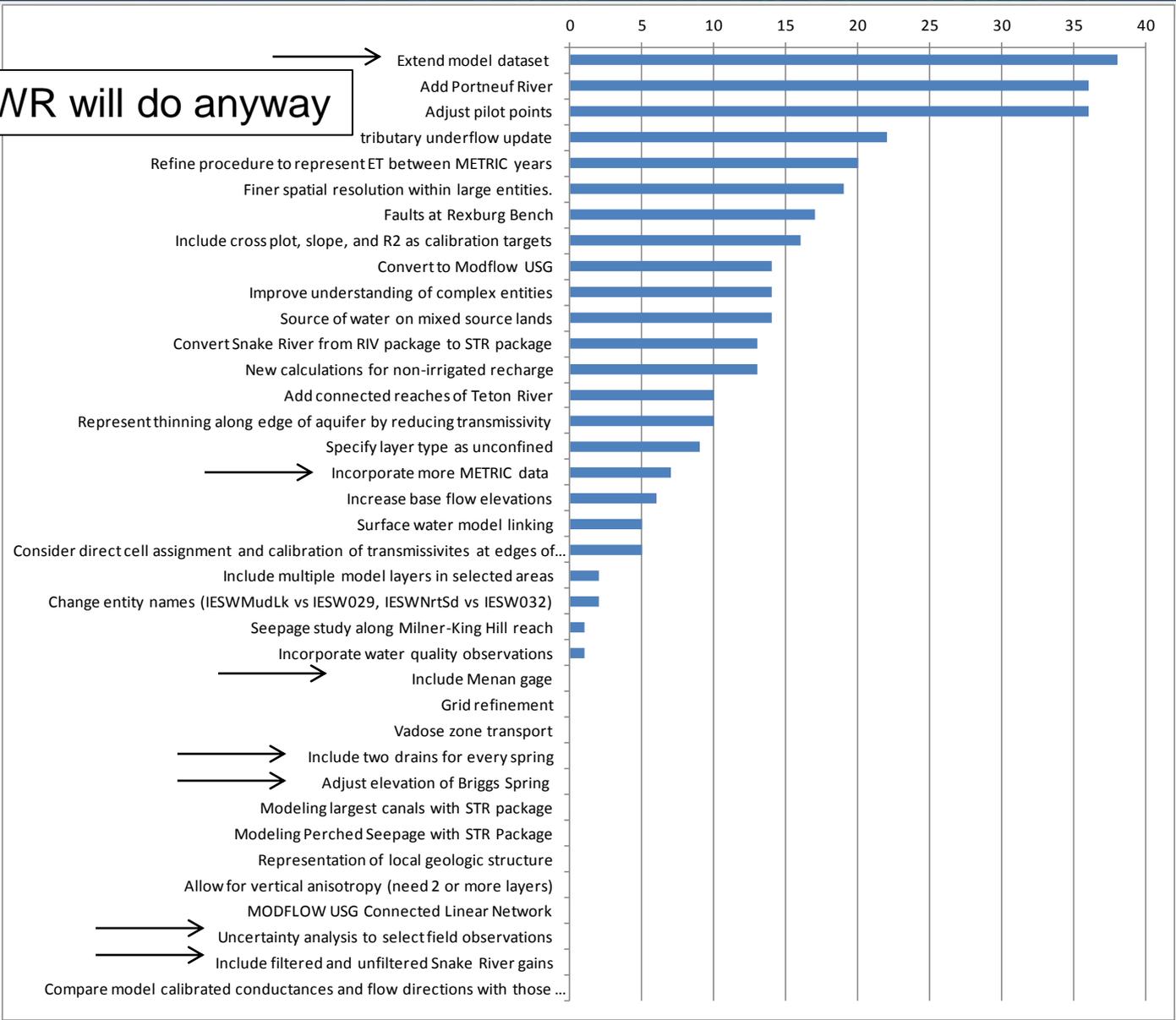
17 March 2015

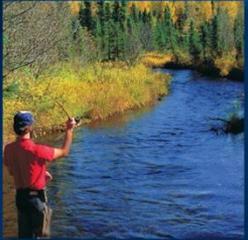
# Outline

- Obtain ESHMC feedback
  - Rankings by committee members
- Assign scores to rankings
- Recommendation to ESHMC



**IDWR will do anyway**





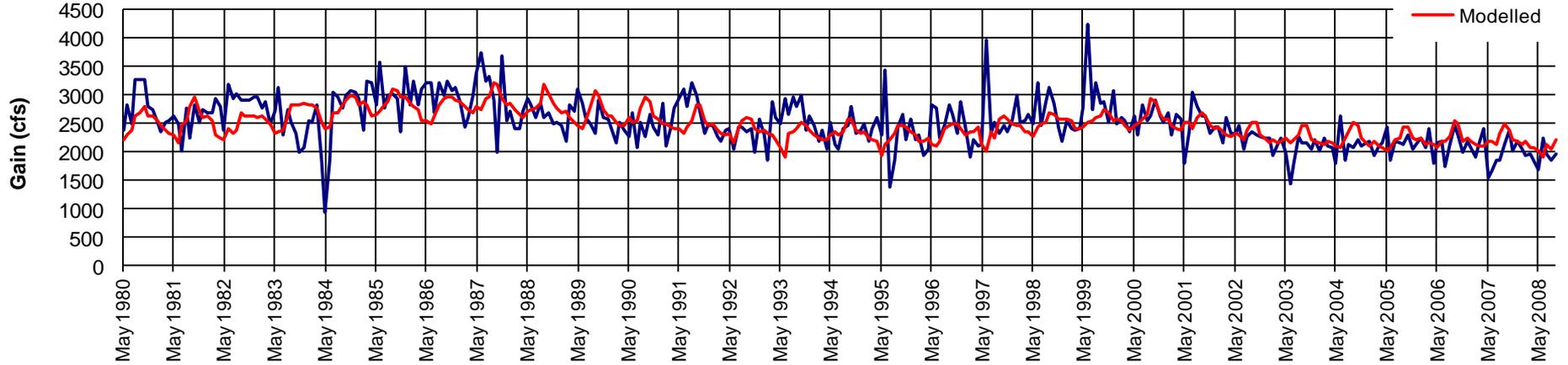
# Recommendation

- IDWR pursue all low effort recommendations on the list with a bias toward higher ranking recommendations
- Resource intensive updates should come from recommendations that scored higher

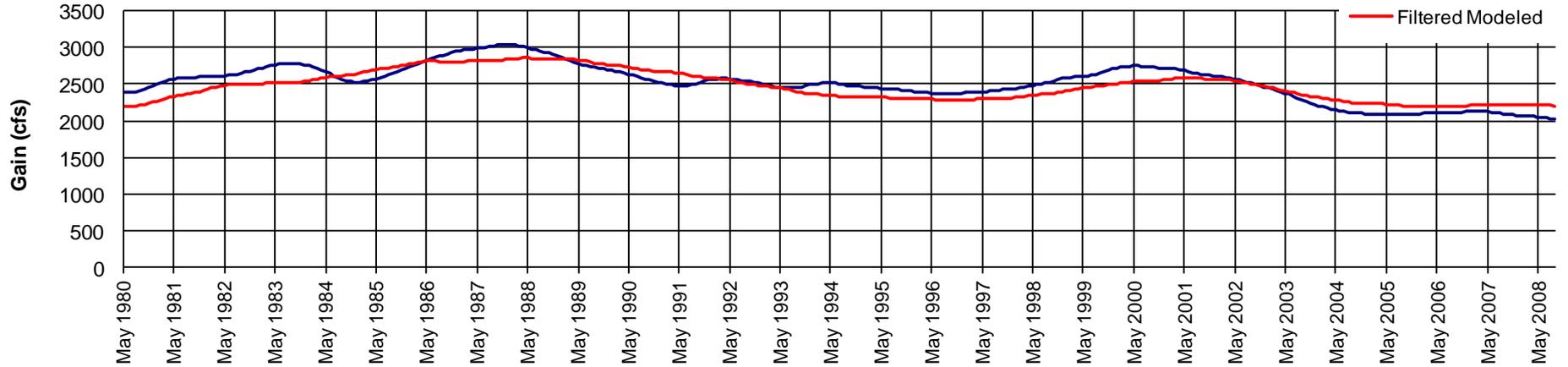
Prioritized improvements to ESPAM2.1 - projected to be completed by December 2015			
Task		Level of Effort	Comments
1	Model the Portneuf River as connected to the ESPA aquifer	moderate	Will include the reach between the gage at Edson Fichter Park and the upper end of American Falls Reservoir, and will include the USGS gages at Pocatello and near Tyhee. The reach gain calculation is somewhat complex.
2	Include the Snake River USGS gage near Menan, ID as a model calibration target	easy	Data already entered into next draft model version (ESPAM2.2)
3	Include two drains in every cell where springs discharge along the western model	easy	Modification already built into draft version of ESPAM2.2.
4	Adjust the drain elevation in the model cell representing Briggs Spring	easy	Drain cell already modified in draft version of ESPAM2.2
5	Include filtered and unfiltered Snake River gains	moderate	Filtered data already entered into draft version of ESPAM2.2; evaluation of spikes and data outliers in
6	Extend model dataset	easy	Model period will increase approximately 5 years from 2008 through the 2013 irrigation season.
7	Incorporate more Metric data	easy	ET results for 2010, 2011, and 2013 and possibly 1986 and 1992 will be included in ESPAM2.2.
8	Adjust pilot points	easy	
9	Improve understanding and finer spatial resolution of complex irrigation entities	moderate	Refined data for AFRD2/Big Wood Canal Company Service area already entered into
10	Incorporate faults on Rexburg Bench	easy	Hydrologic significance of the faults is uncertain.
11	Include cross plot, slope, and R <sup>2</sup> as calibration targets	moderate	
12	Change names of irrigation entities	easy	
13	Add Teton River as connected to the ESPA aquifer	easy	May not be feasible without field data
14	Direct cell assignment and calibration of transmissivity at edges of model domain	easy	No indication of benefit from results to date.
Prioritized improvements in developing ESPAM3.0 - projected to be completed in three to five years			
Task		Level of Effort	Comments
1	Convert to Modflow USG	easy	The conversion will be easy assuming we retain the uniform 1 mile x 1 mile grid. Will require significant committee review and discussion
2	Convert to an unconfined representation of the ESPA	moderately difficult	Will require significant committee review and discussion
3	Refine procedure to represent ET between METRIC years	moderately difficult	Will require significant effort to process other data (e.g, NDVI, other satellite imagery).
4	New calculations for non-irrigated recharge	unknown	Approach and algorithms need to be developed and requires committee review and discussion.
5	Source of water on mixed source Inads	difficult	Significant unknowns.



**nr Blackfoot to Neeley Unfiltered Gains**  
Calibration Period (May 1985 - Sep 2008)

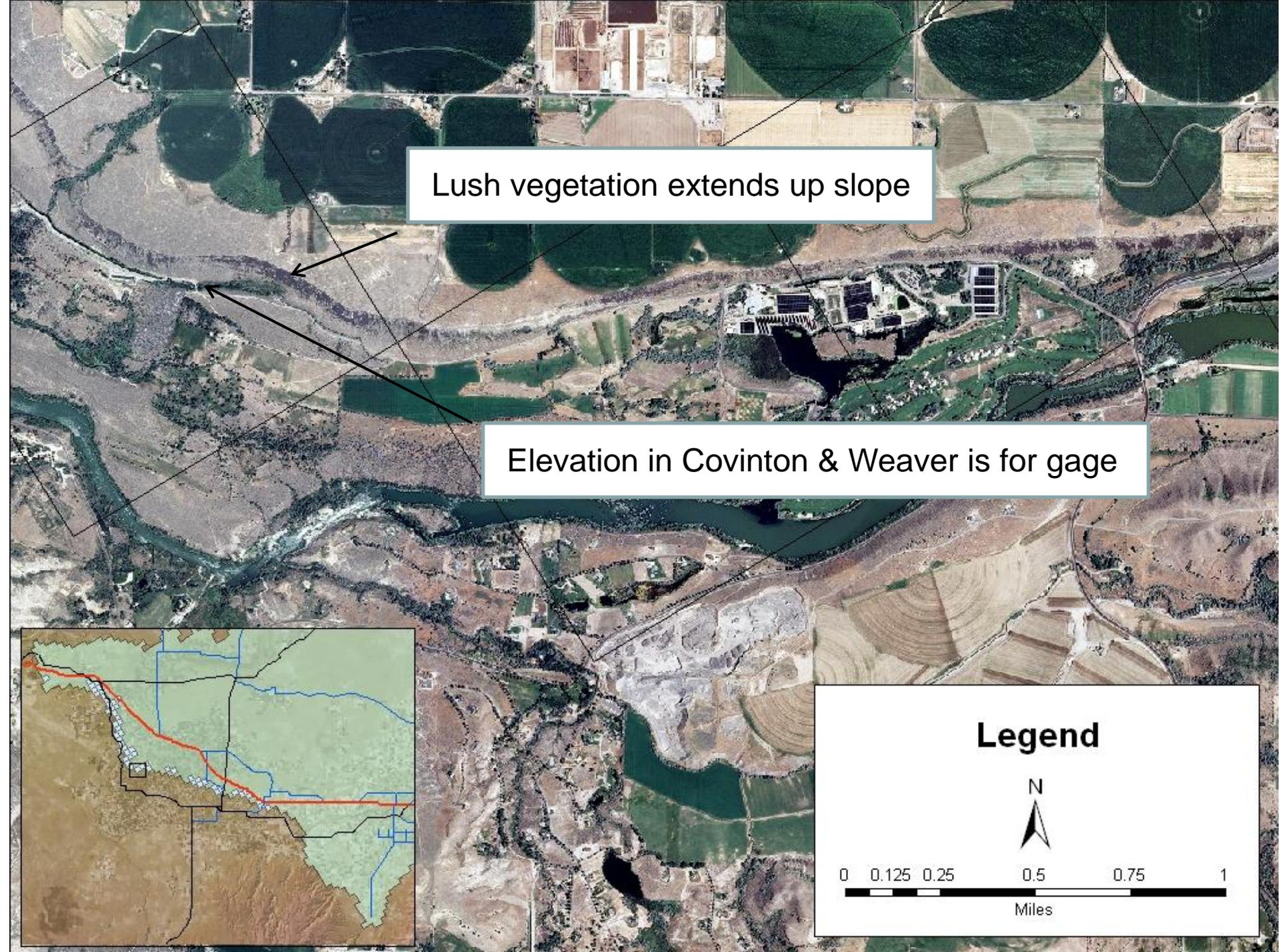


**nr Blackfoot to Neeley Filtered Gains**  
Calibration Period (May 1985 - Sep 2008)



# Adjust Elevation of Briggs Sp

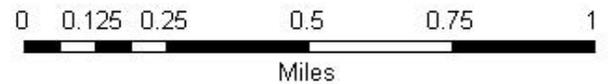
- Elevation of Briggs is for the USGS gauge
- Spring emerges at a higher elevation
- Higher elevation will allow model to replicate observed seasonal variation



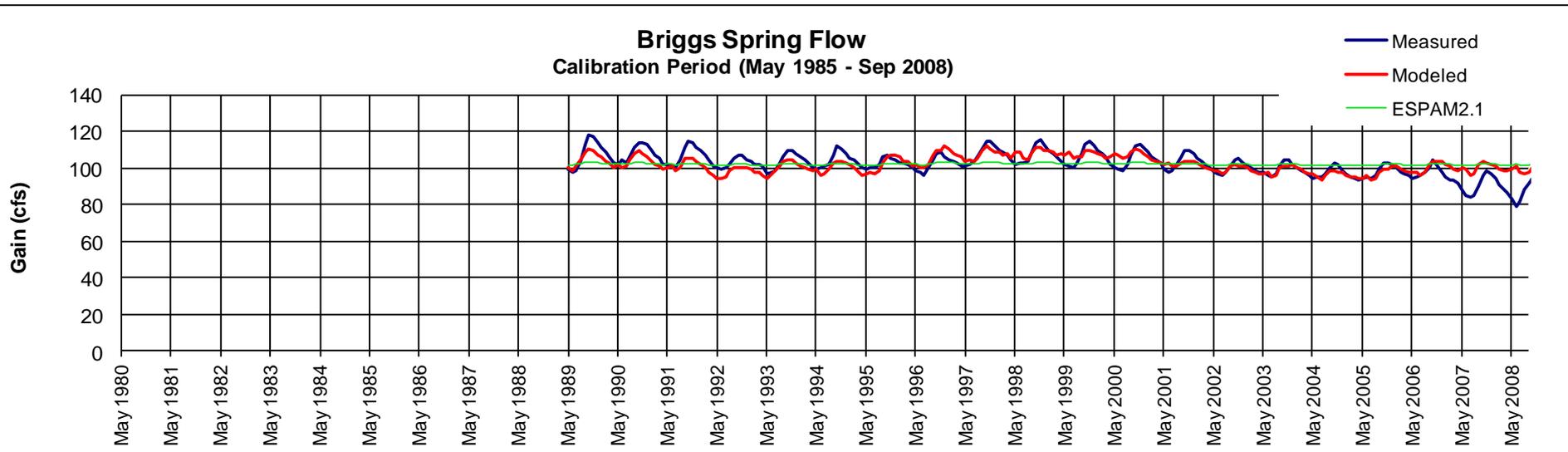
Lush vegetation extends up slope

Elevation in Covinton & Weaver is for gage

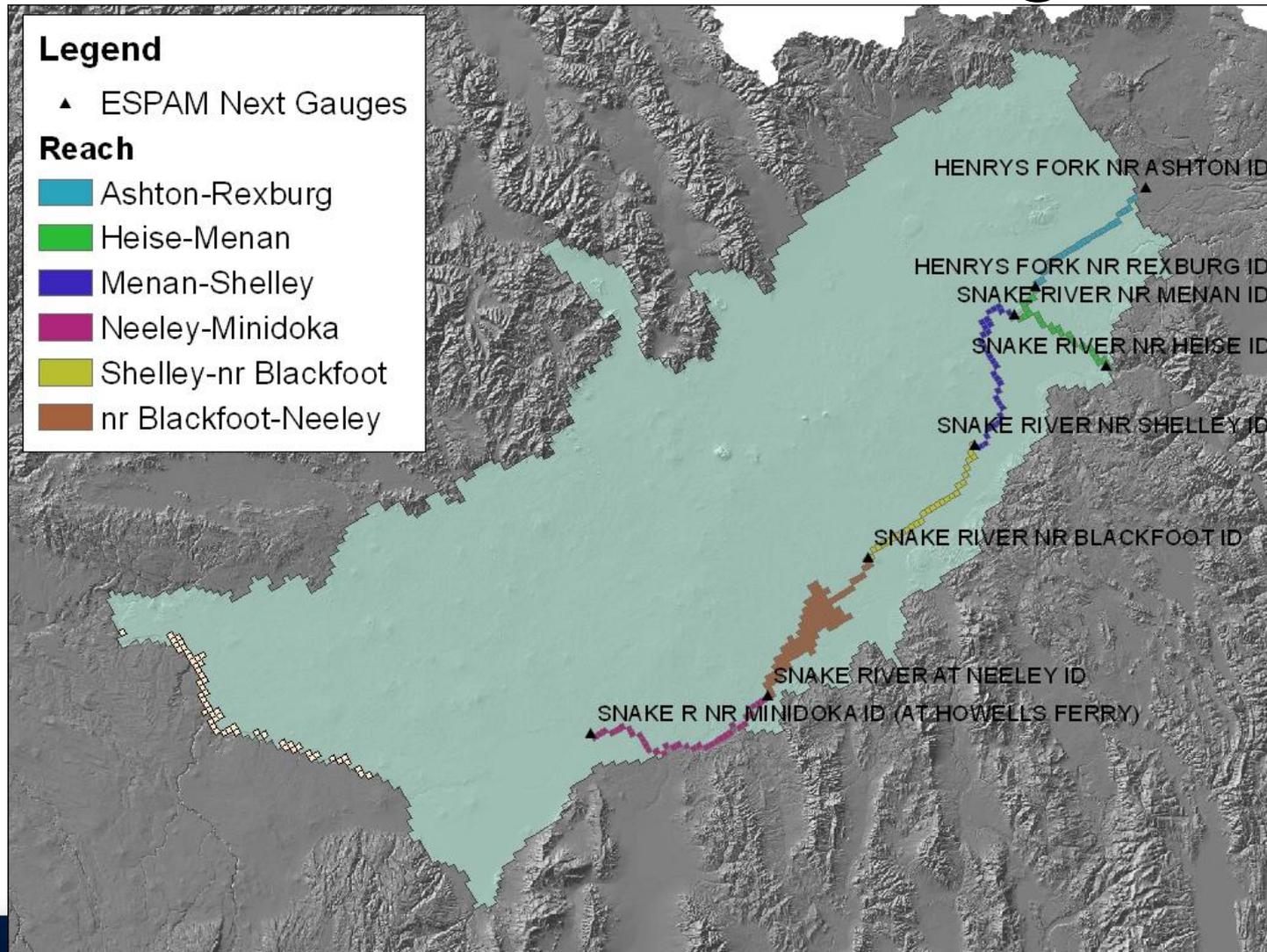
### Legend

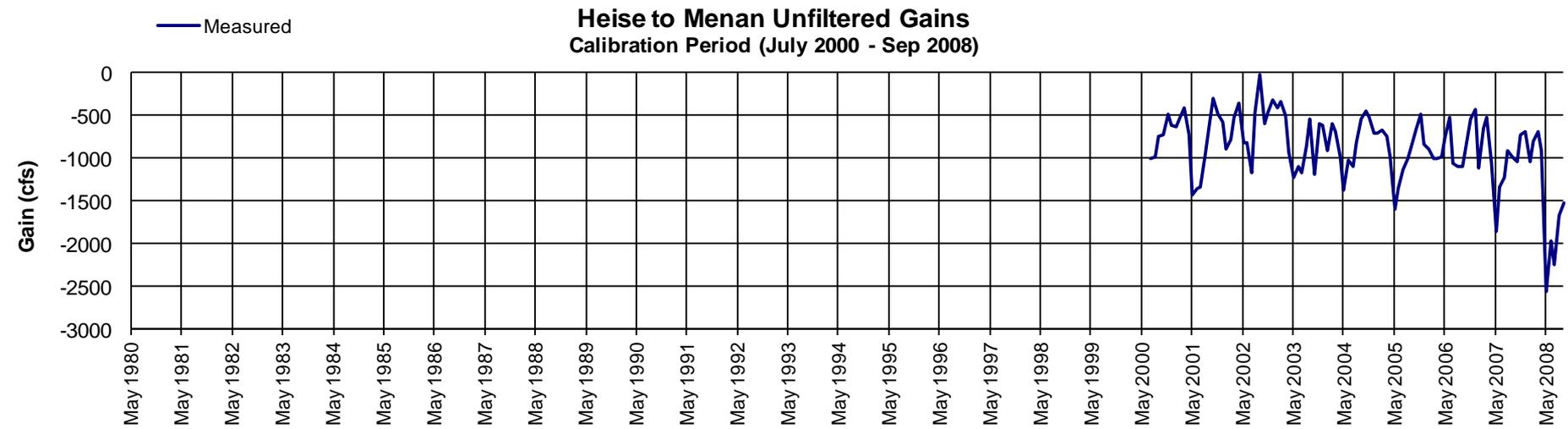
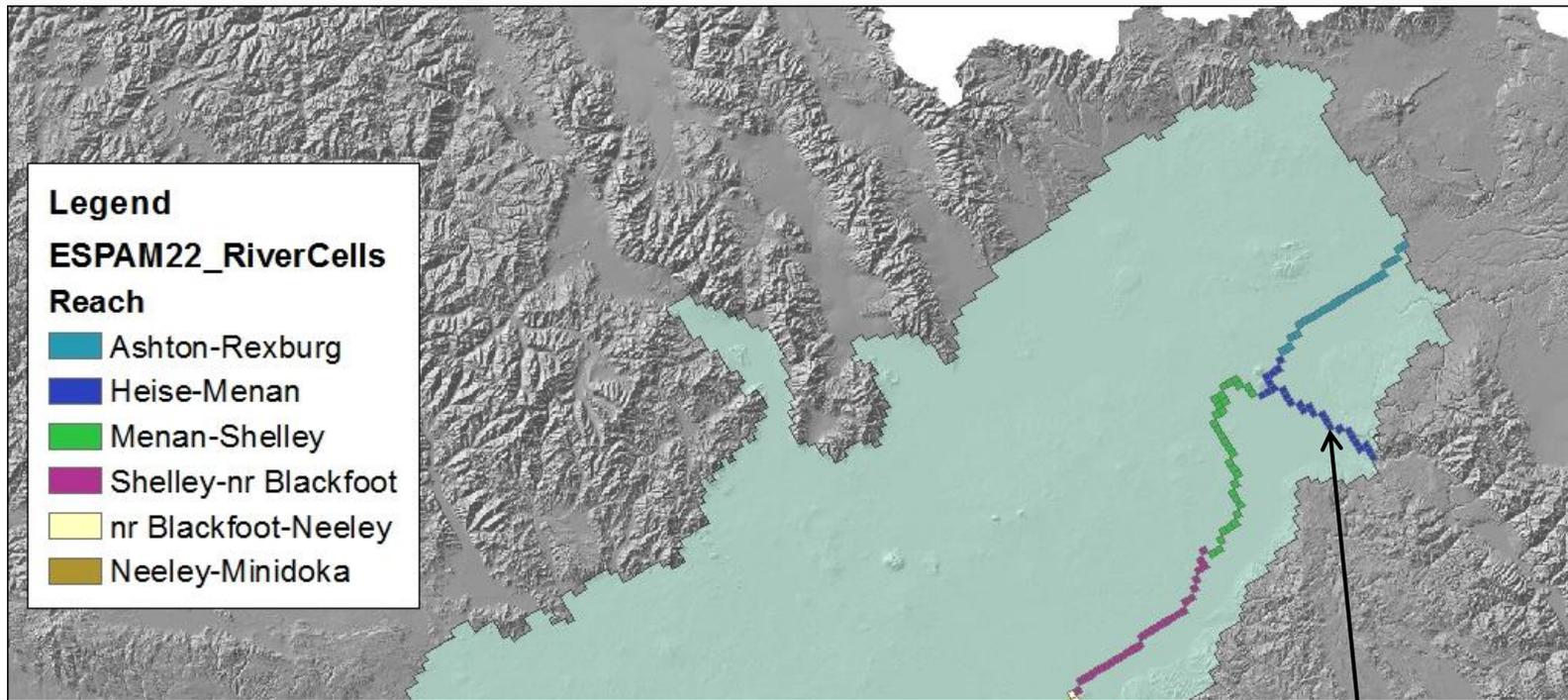


# Adjust Elevation of Briggs Sp



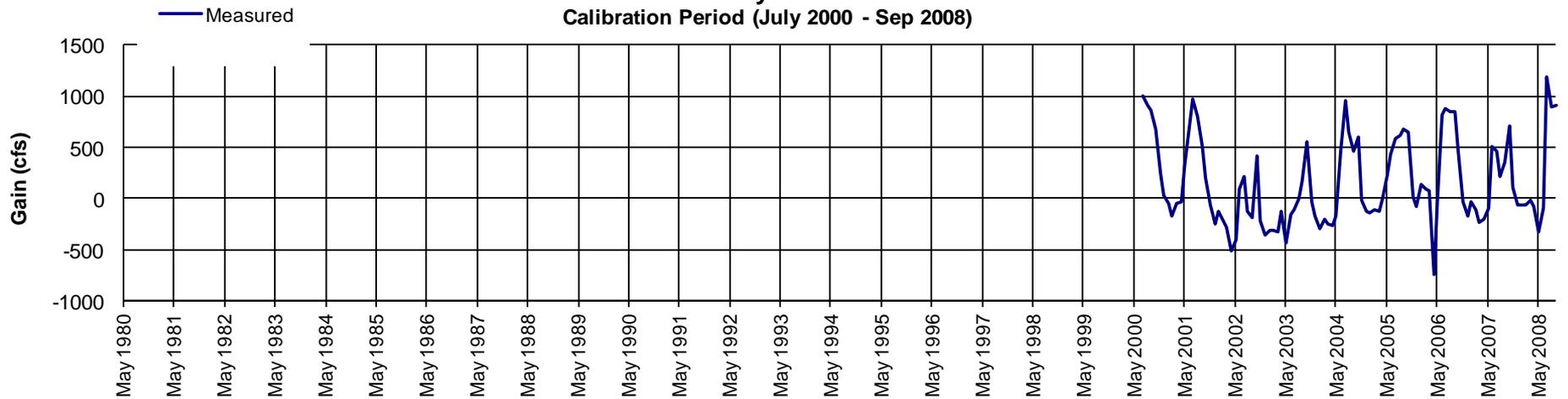
# Include Menan Gage



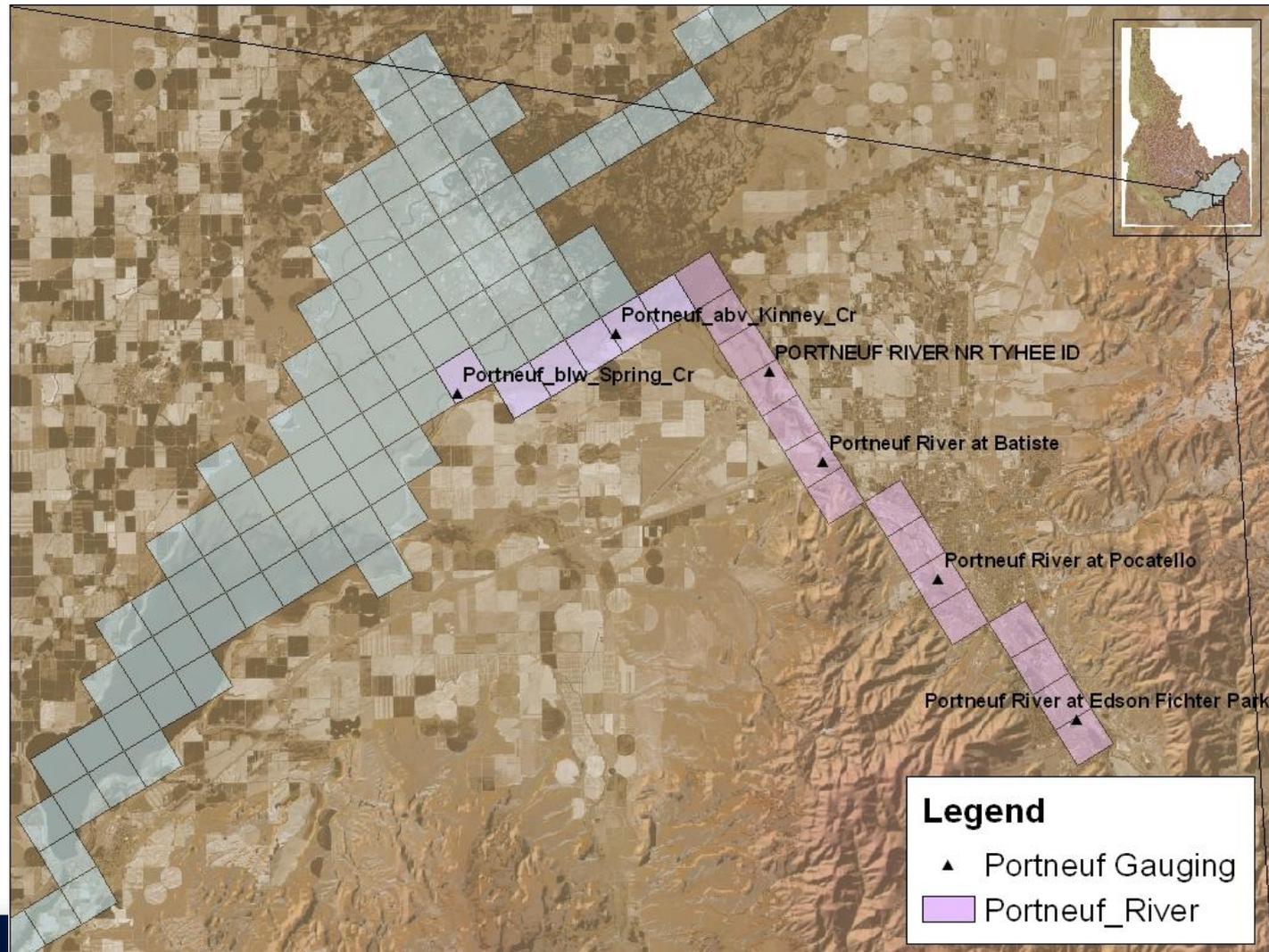


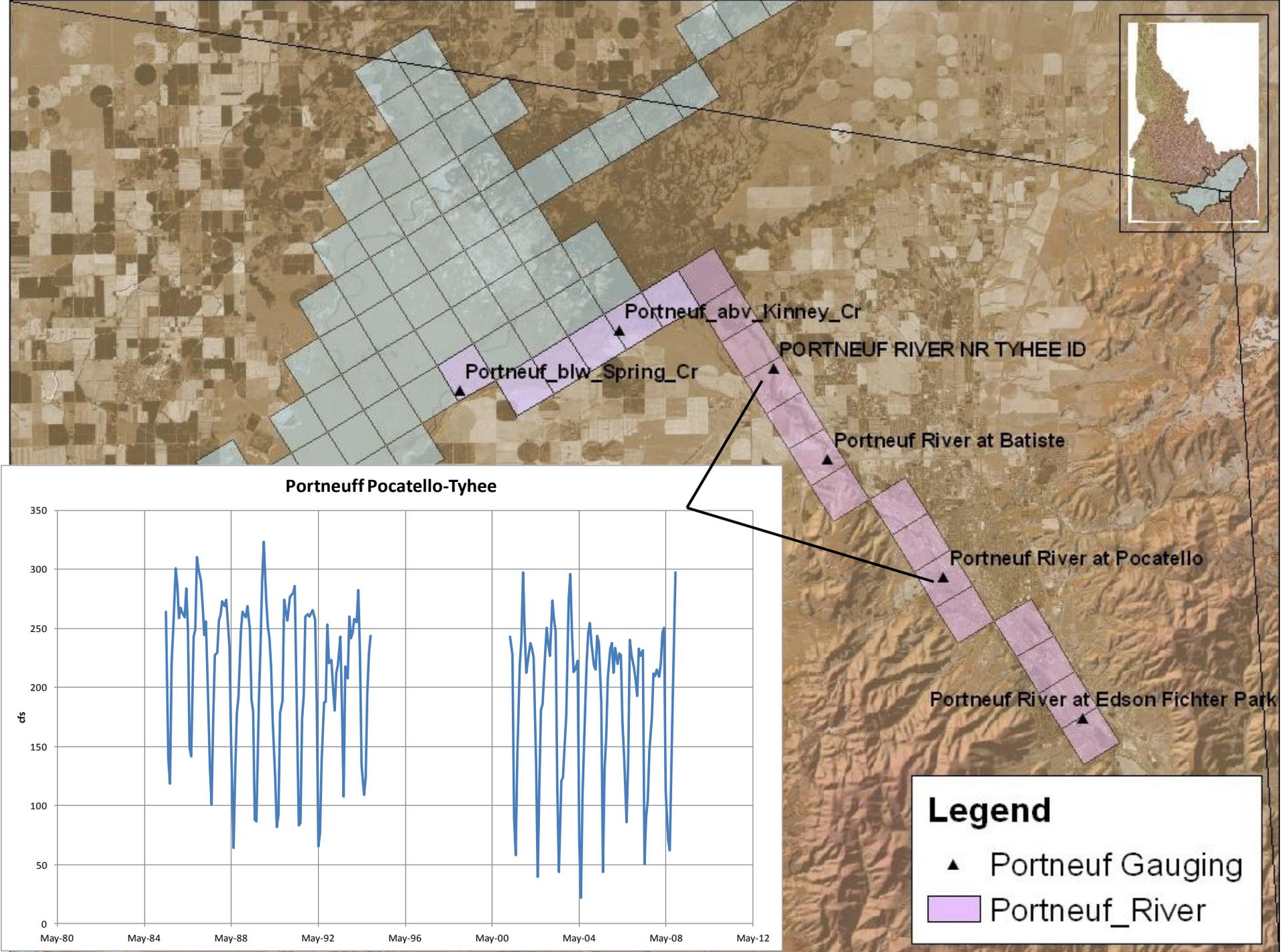


**Menan to Shelley Unfiltered Gains**  
**Calibration Period (July 2000 - Sep 2008)**

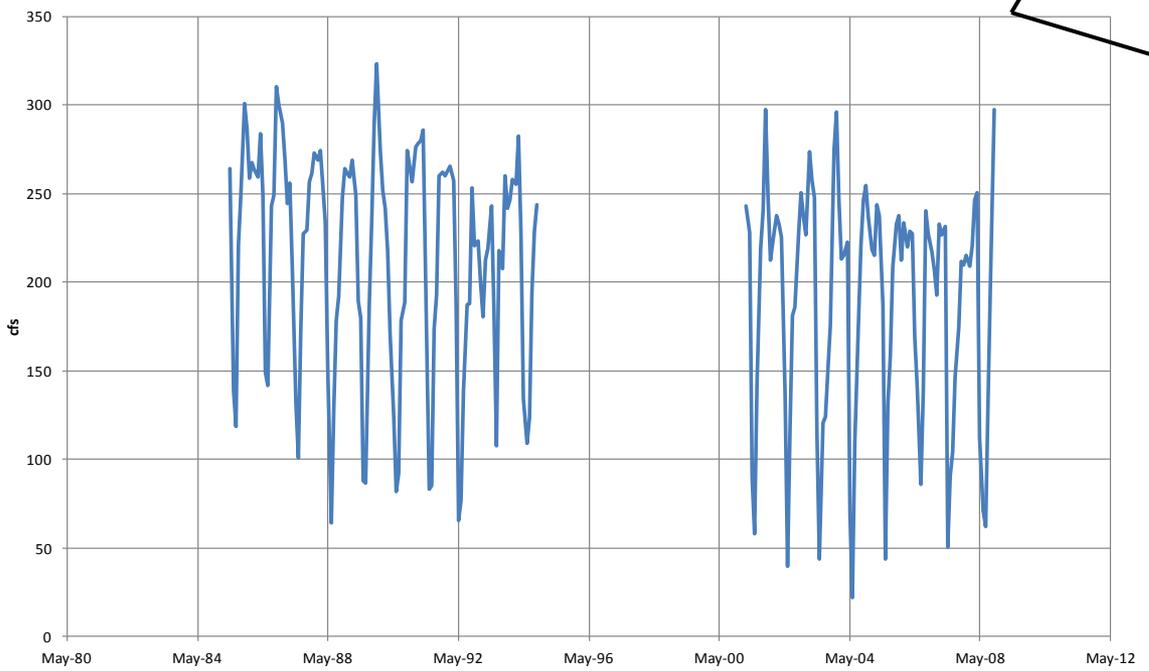


# Portneuff River



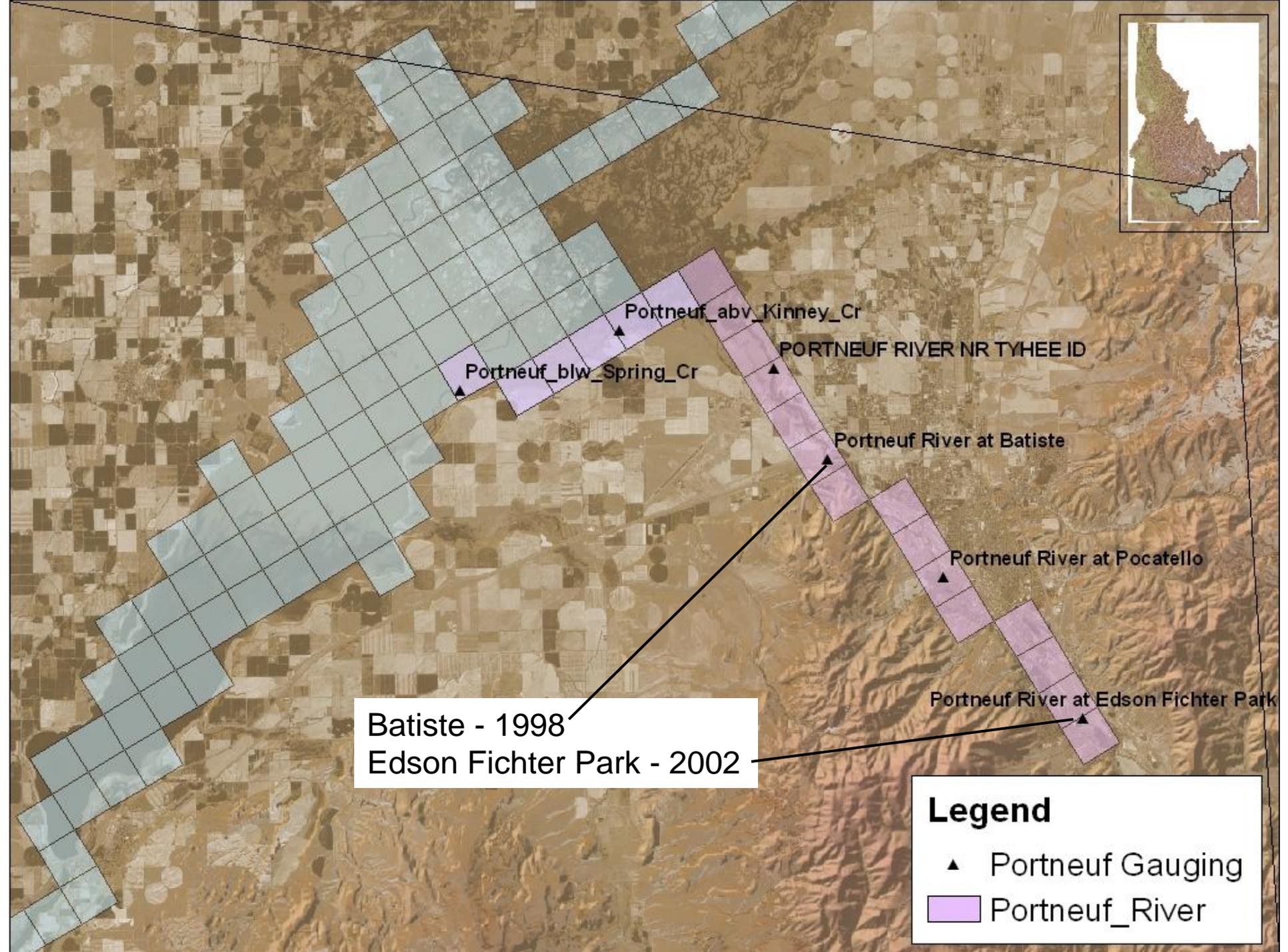


Portneuff Pocatello-Tyhee



**Legend**

- ▲ Portneuf Gauging
- Portneuf\_River



Portneuf\_abv\_Kinney\_Cr  
Portneuf\_blw\_Spring\_Cr

PORTNEUF RIVER NR TYHEE ID

Portneuf River at Batiste

Portneuf River at Pocatello

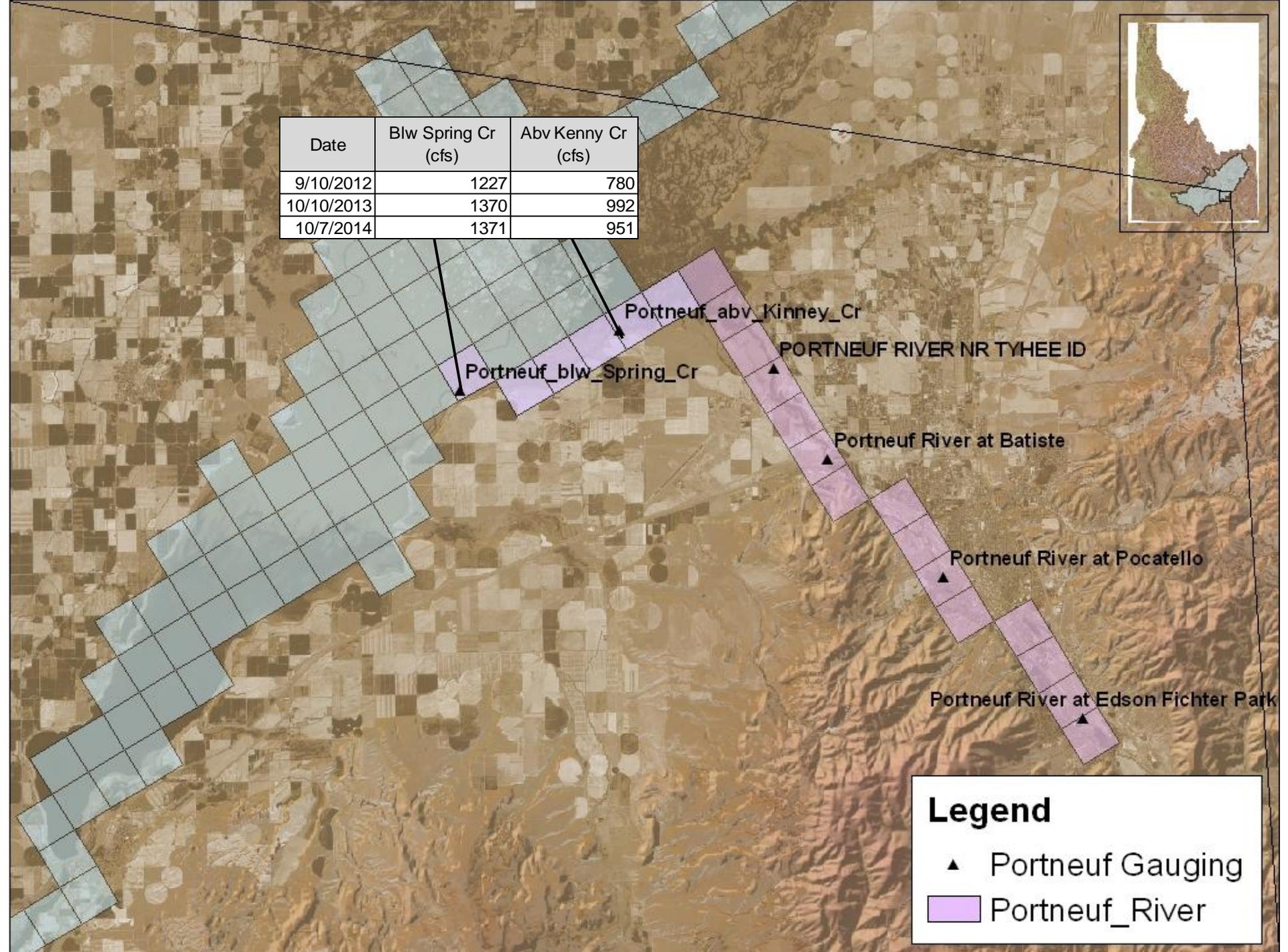
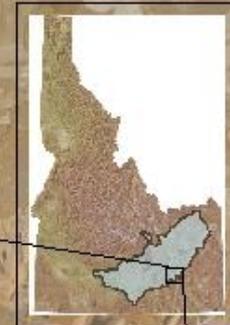
Portneuf River at Edson Fichter Park

Batiste - 1998  
Edson Fichter Park - 2002

**Legend**

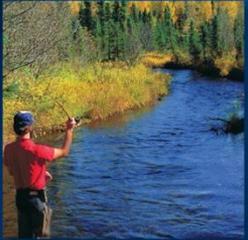
- ▲ Portneuf Gauging
- Portneuf\_River

Date	Blw Spring Cr (cfs)	Abv Kenny Cr (cfs)
9/10/2012	1227	780
10/10/2013	1370	992
10/7/2014	1371	951



**Legend**

- ▲ Portneuf Gauging
- Portneuf\_River



End