

Economic Contribution of River Recreation Opportunities

Sustaining Colorado's Watersheds Conference 2021

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What is the value of a Boatable Day?

- When flow in the river is sufficient for recreational use, what is the impact on the local economy?
- **Project Goal: Provide a hydrologically-based, objective and quantifiable valuation metric for recreational water use.**
- Determine economic impact of river-based recreation and its sensitivity to water supply changes.

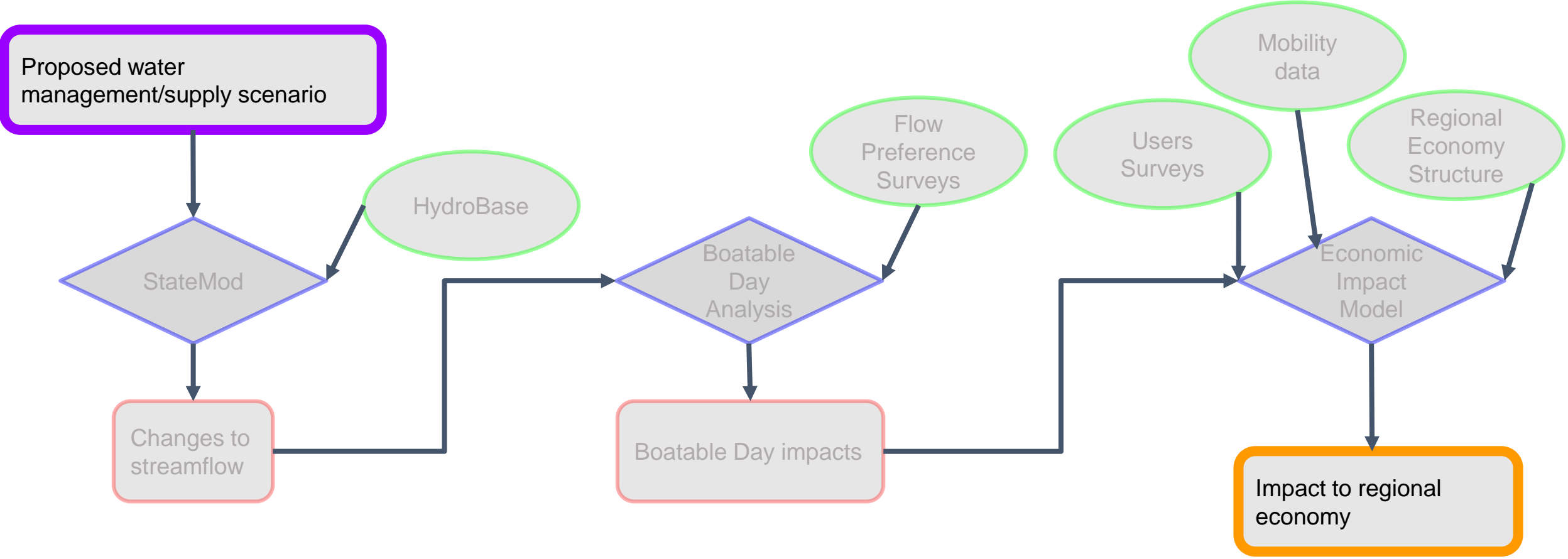


A forward looking tool

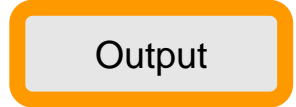
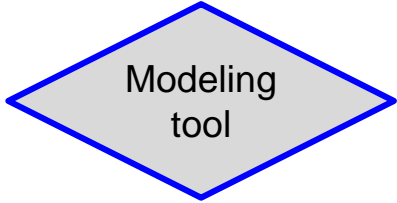
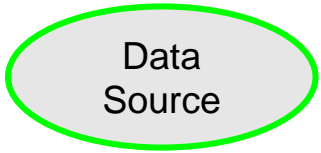
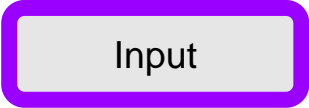
A man with a beard and long hair, wearing a blue jacket and sunglasses on his head, is fishing in a river. The background shows a sunset over a mountain range. The water is turbulent, and the sky is filled with orange and yellow clouds.

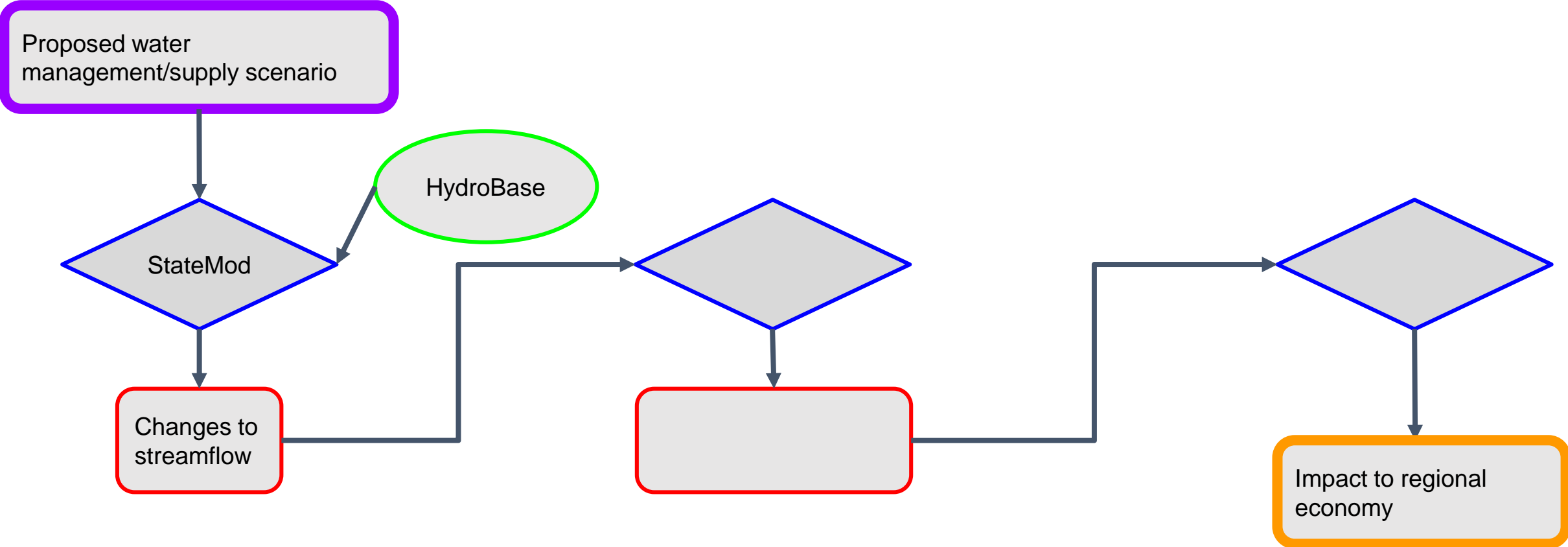
- A decision-making framework to quantify the value of recreational opportunities and their sensitivity to future water supply scenarios.
- Consistent and transferrable methods to be used in other basins.

Project framework

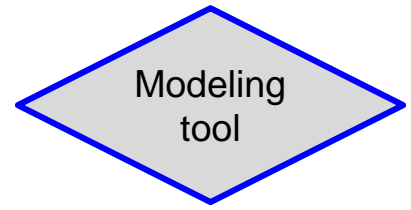
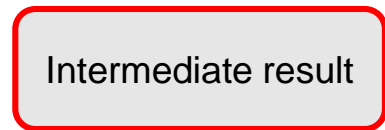
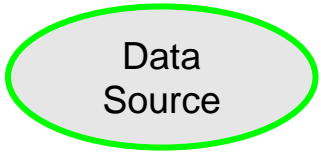


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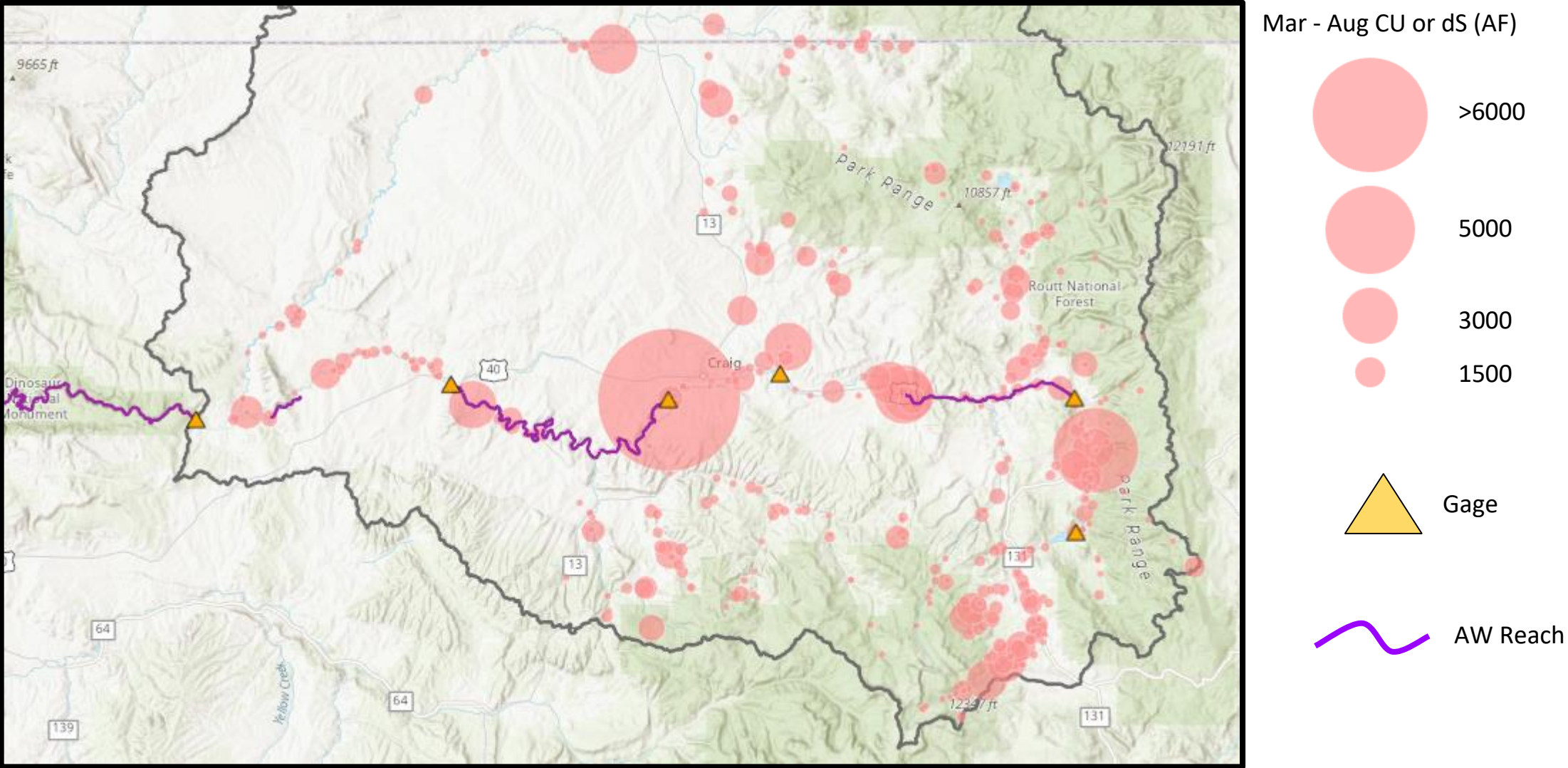




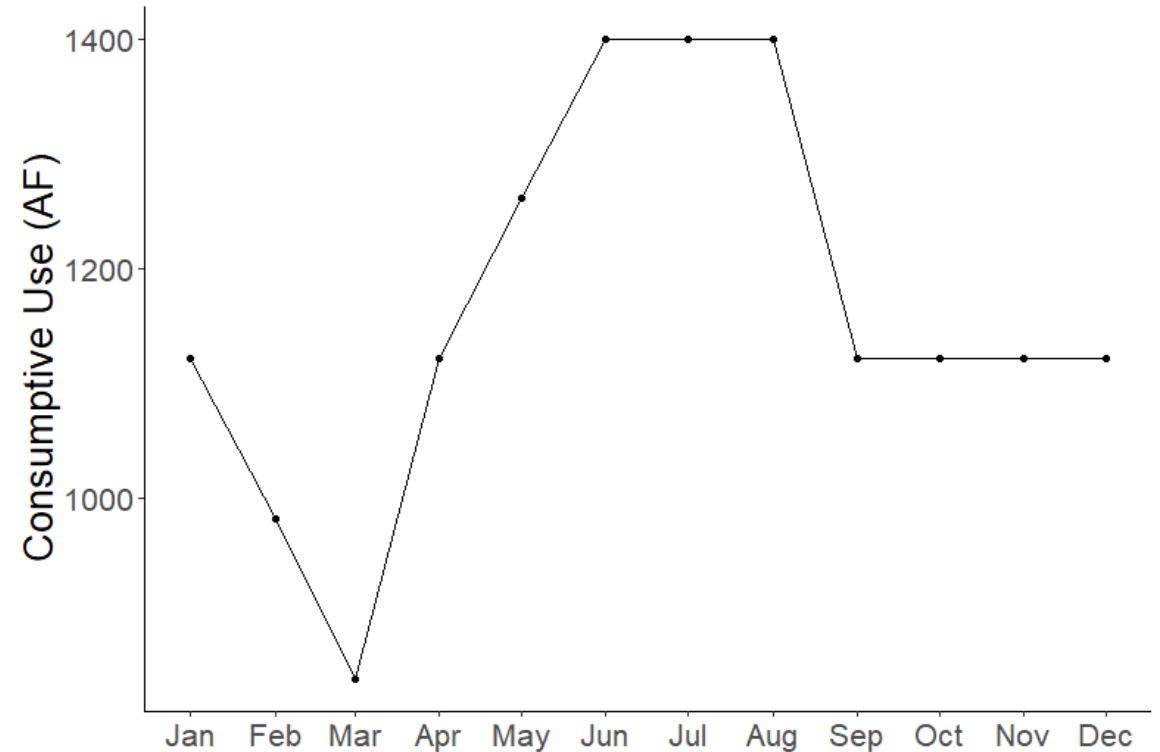
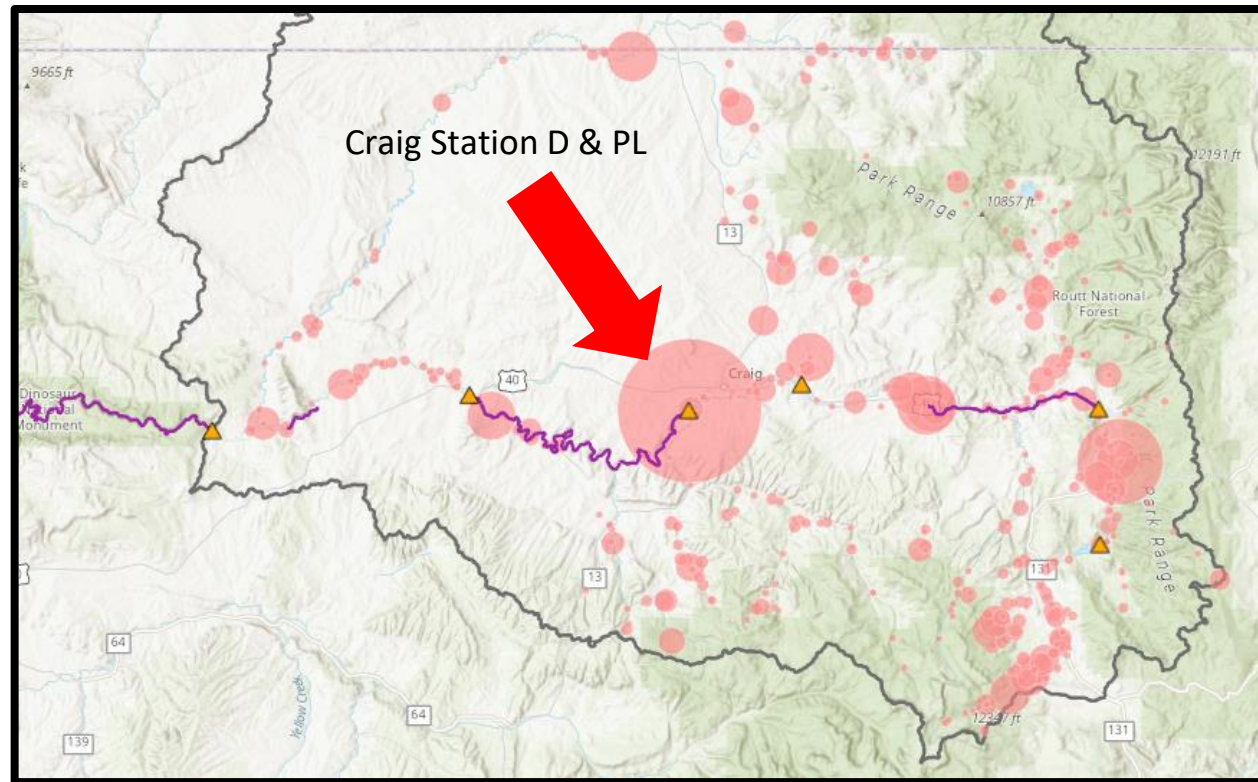
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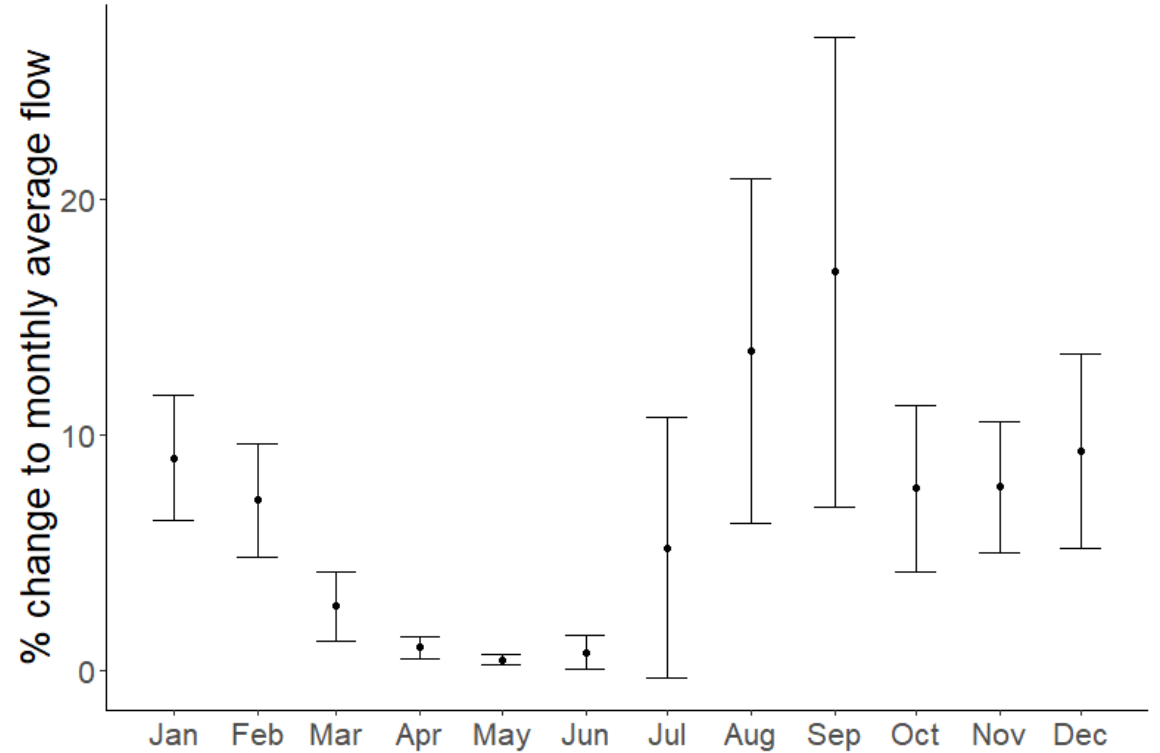
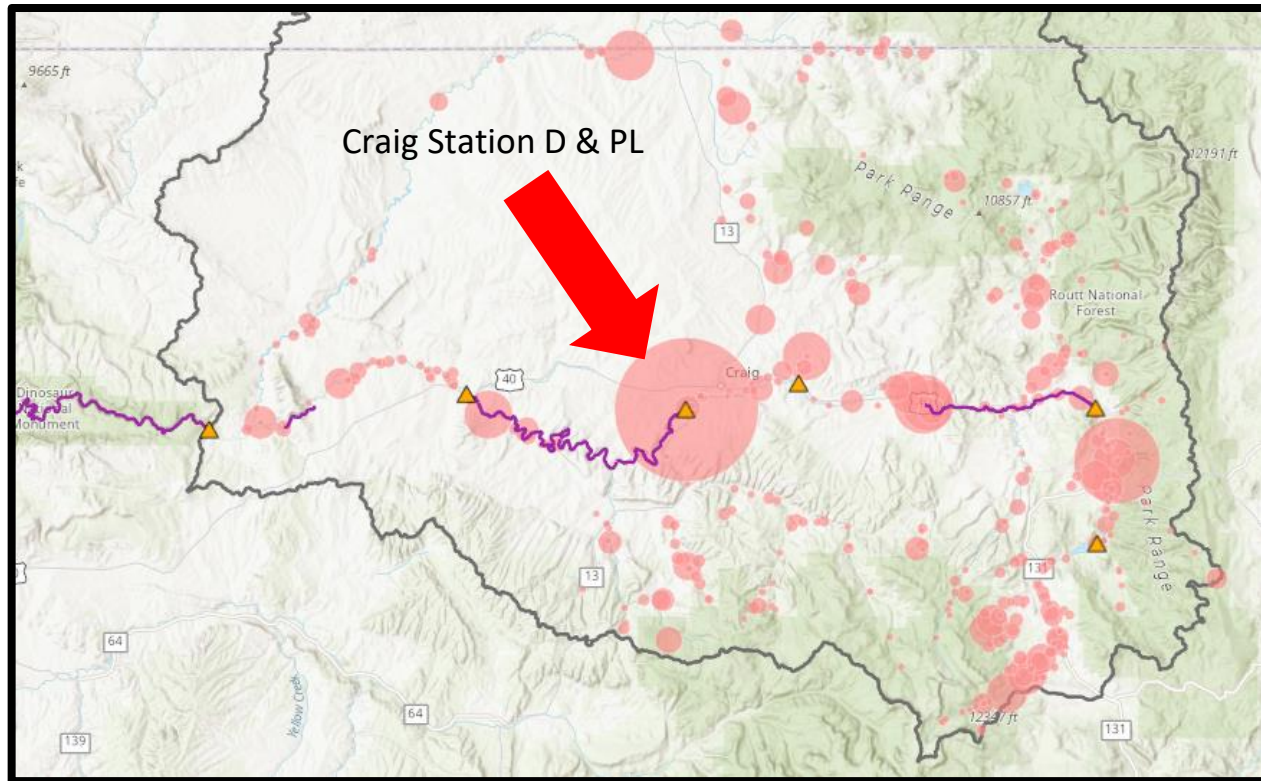
StateMod simulates basin management activities

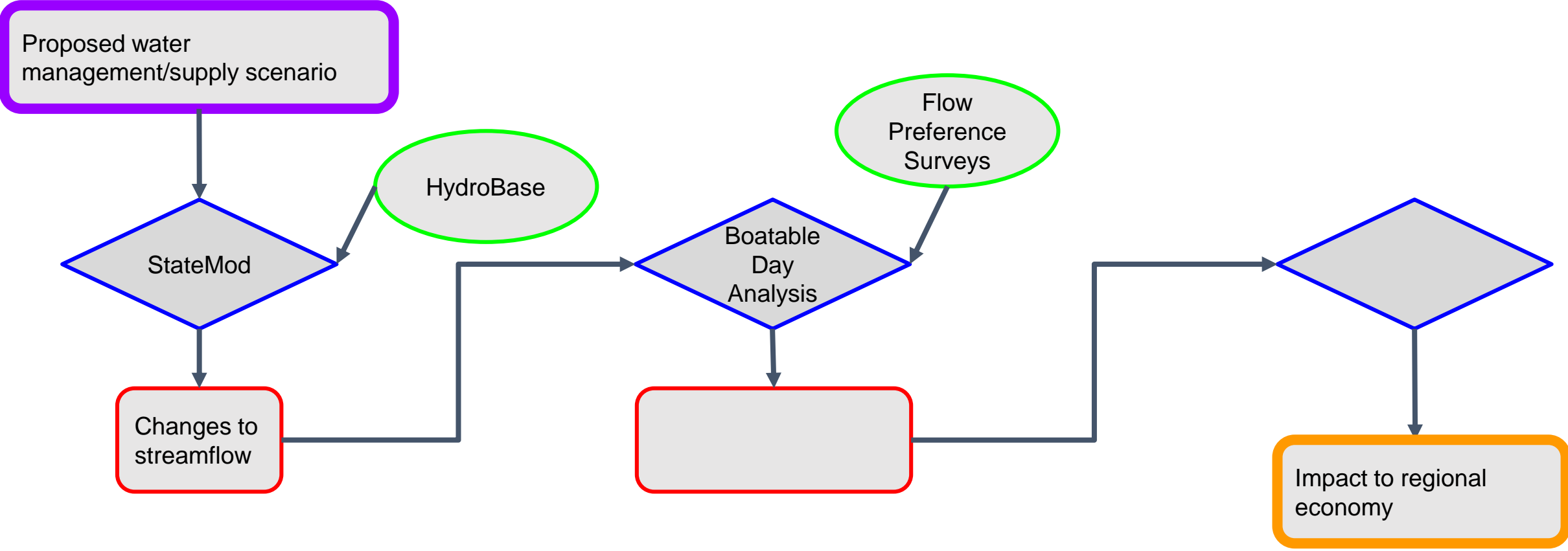


Historical monthly consumptive use for individual water users - e.g. Craig Station

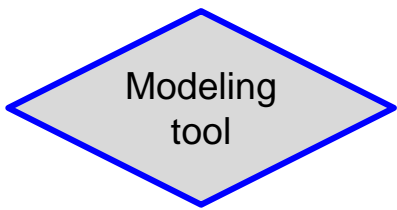
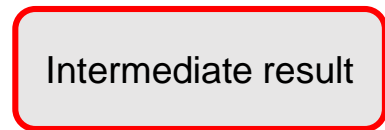
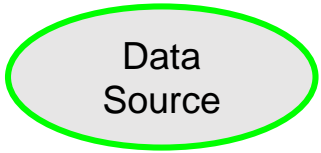


The effect of management on monthly av. flow - e.g. Craig Station





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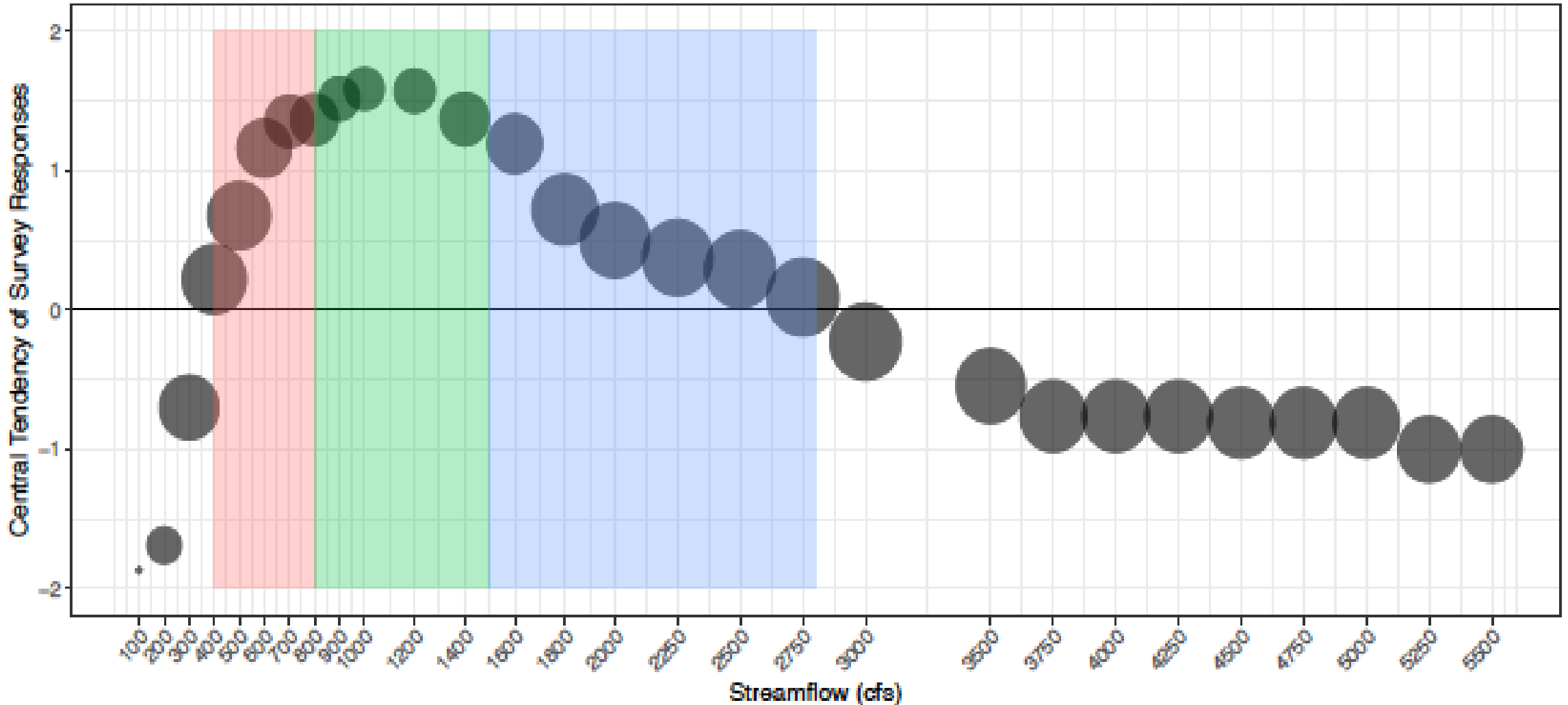
Quantifying Recreational Opportunities: Flow Preference and Boatable Days

- Through its inclusion in the Colorado Water Plan's Nonconsumptive toolbox, American Whitewater's approach has built a common understanding of flow-recreation relationships.
- Studies to date: Colorado River (Cataract Canyon and Upper Colorado Kremmling to Glenwood Springs), Gunnison Basin, San Miguel, Dolores, Yampa, Rio Grande and Conejos, St. Vrain. Eagle River, Gore Creek, Cache La Poudre, Crystal and Roaring Fork.
- Studies in progress: South Platte

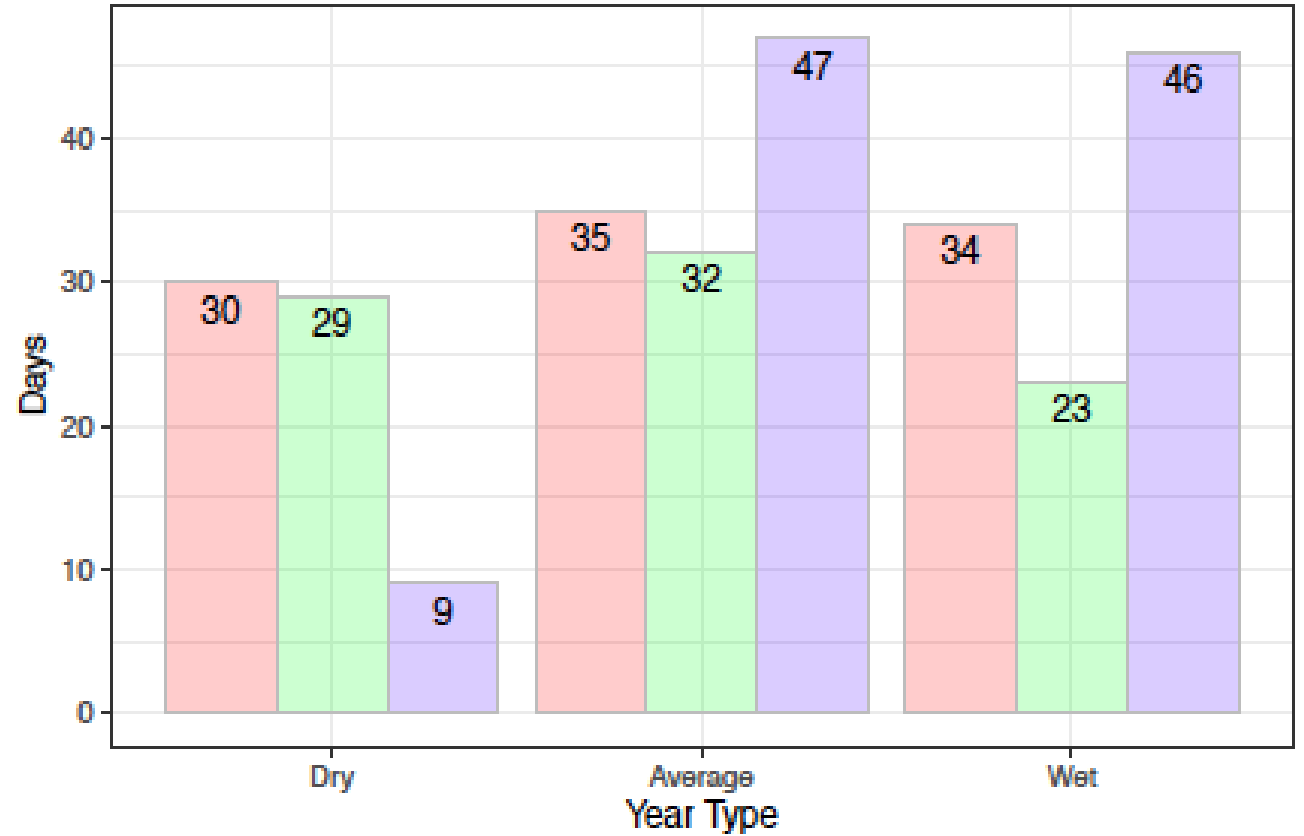
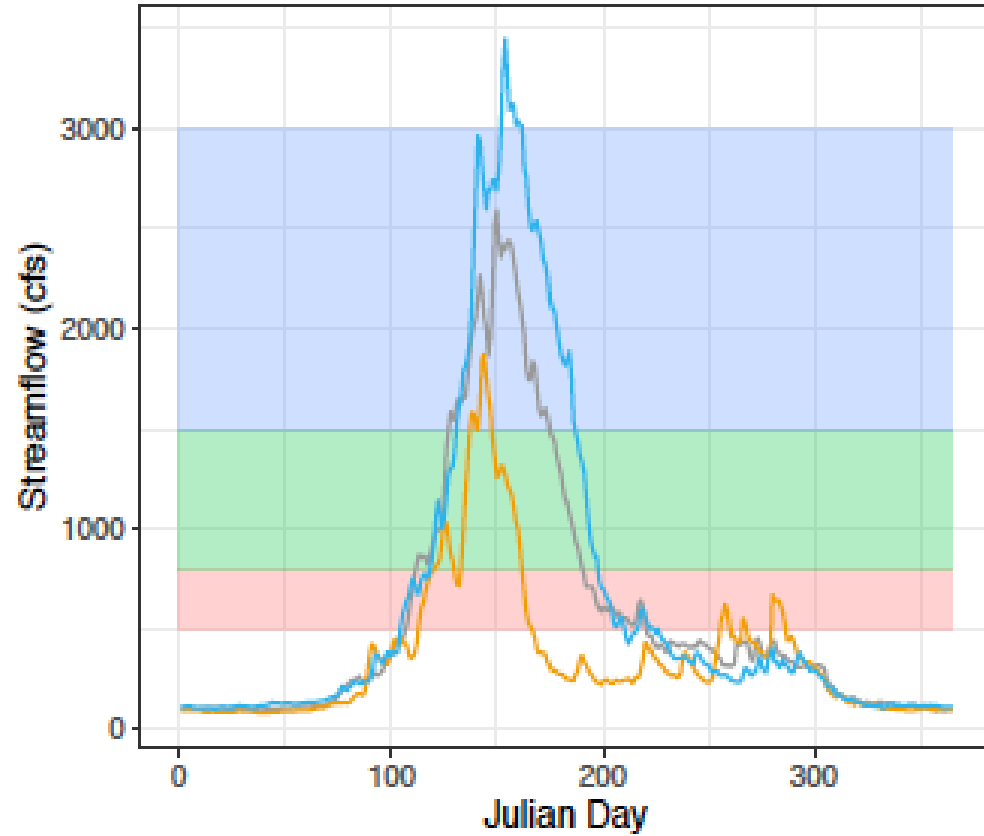


Flow Preference Analysis

A Rio Grande: Wagon Wheel Gap to South Fork (Reach 4)



Boatable Days Analysis

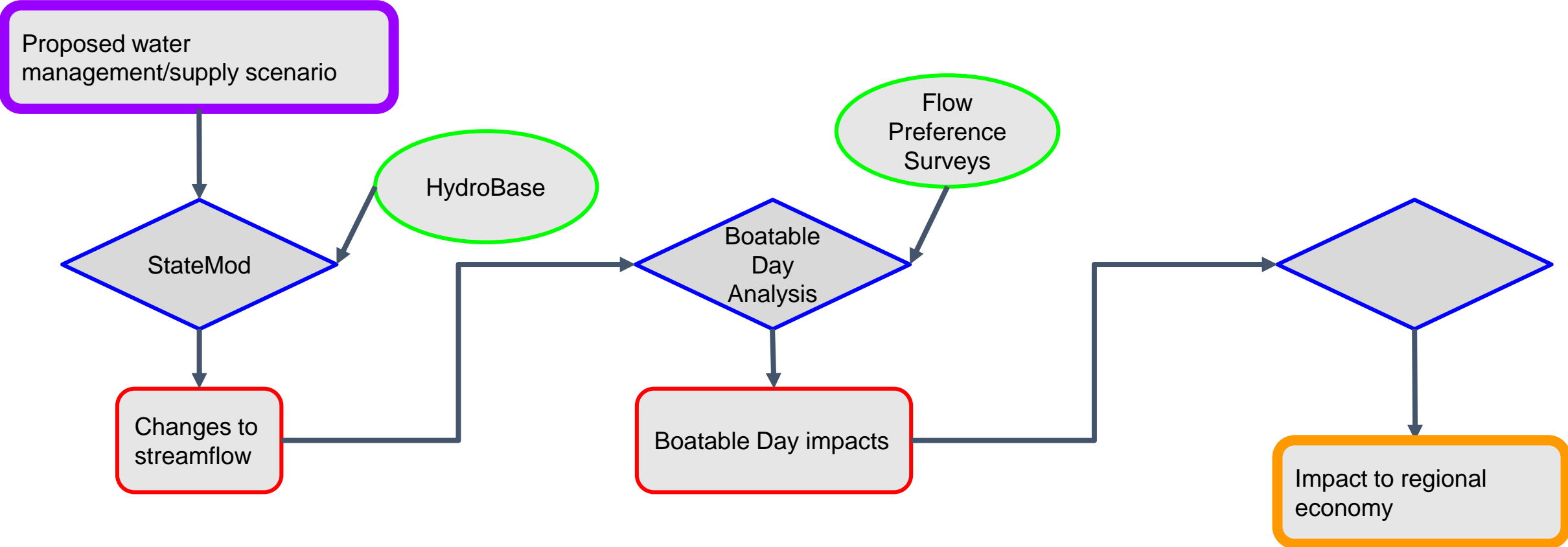


Year Type

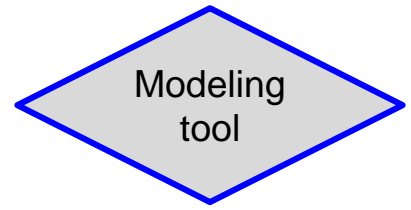
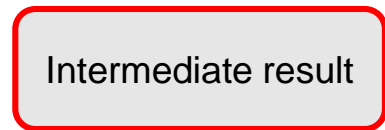
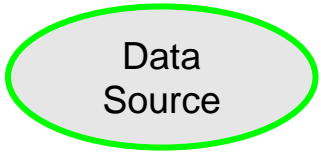
- Average Year
- Dry Year
- Wet Year

Flow Preferences

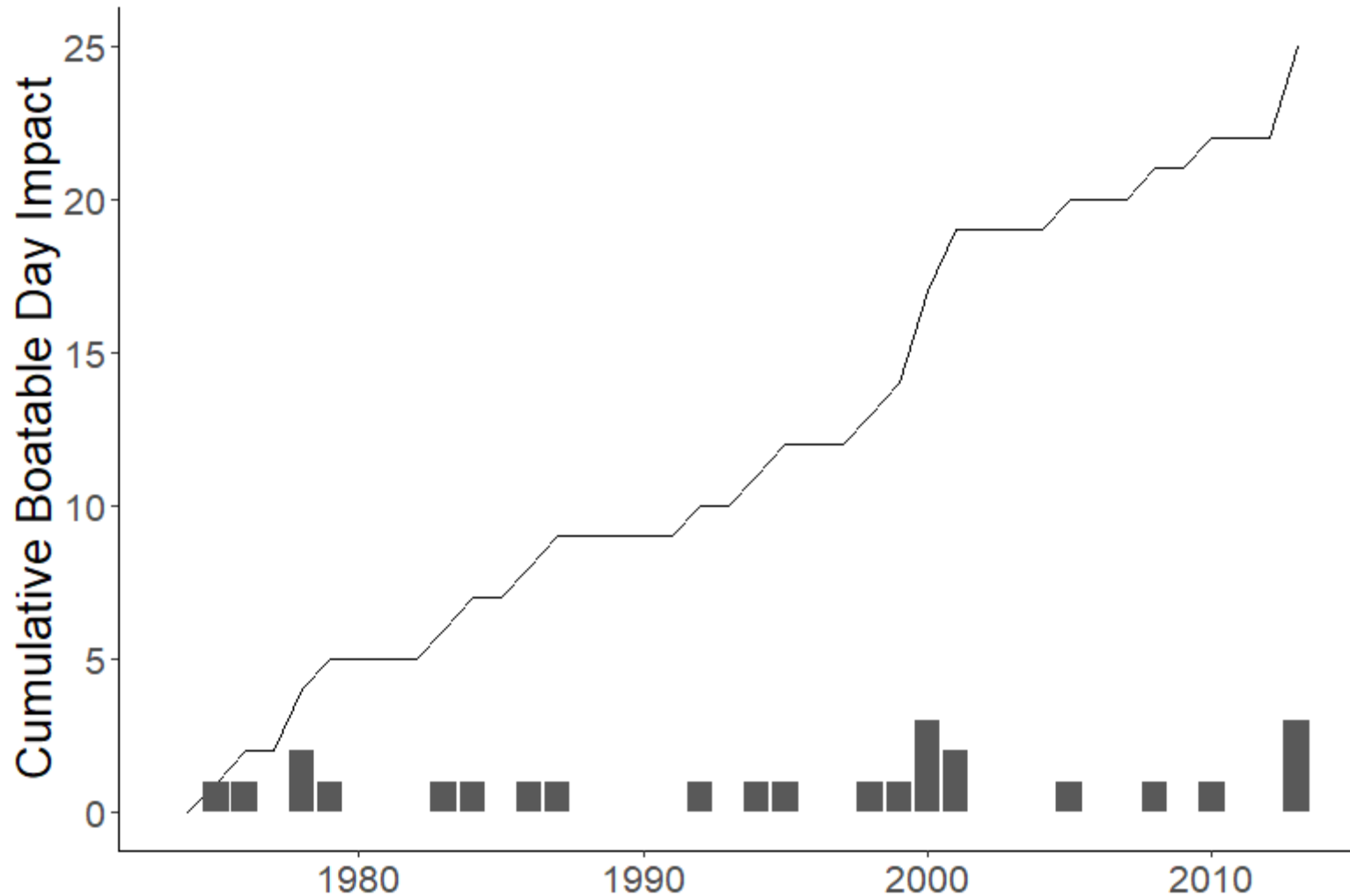
- Lower Acceptable
- Optimal
- Upper Acceptable

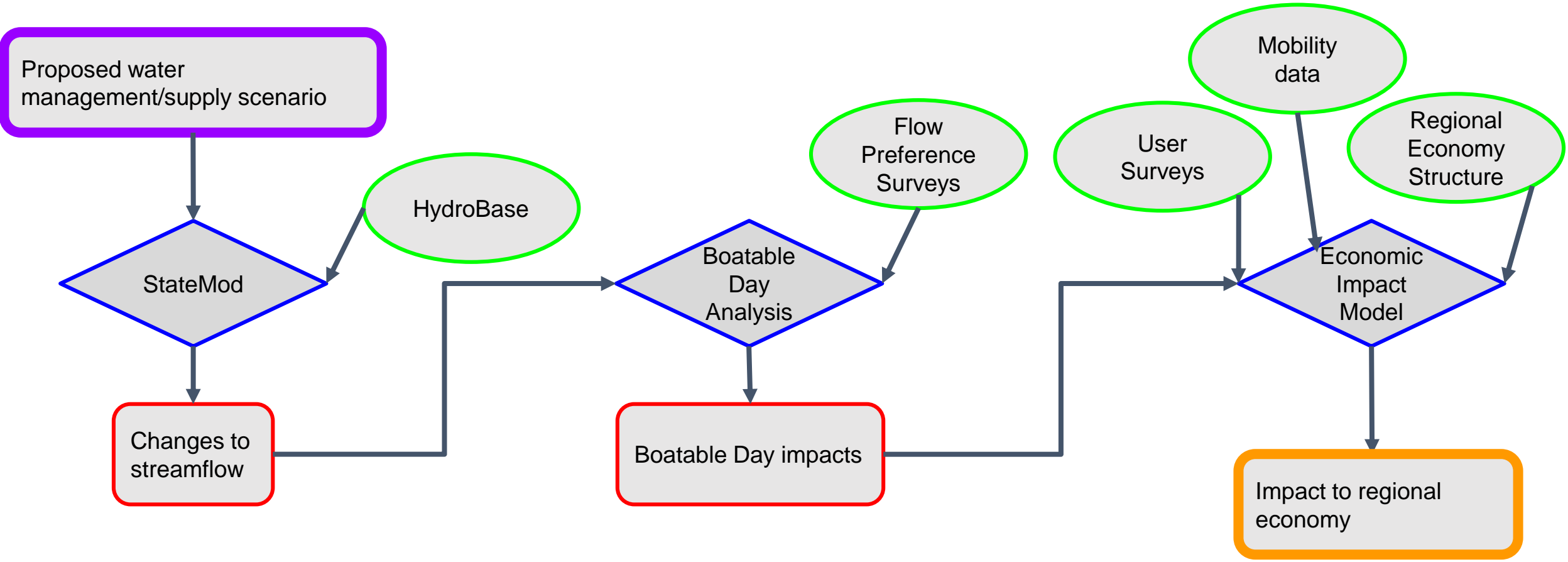


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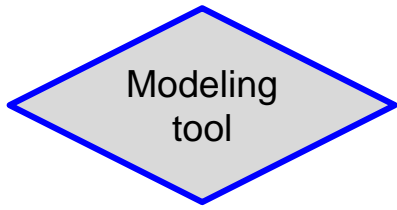
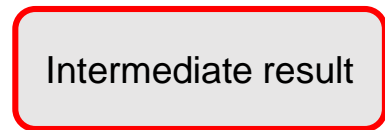
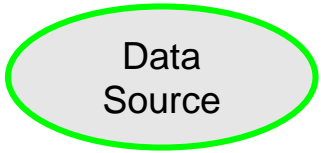


The impact of management activities on boatable days - e.g. Craig Station



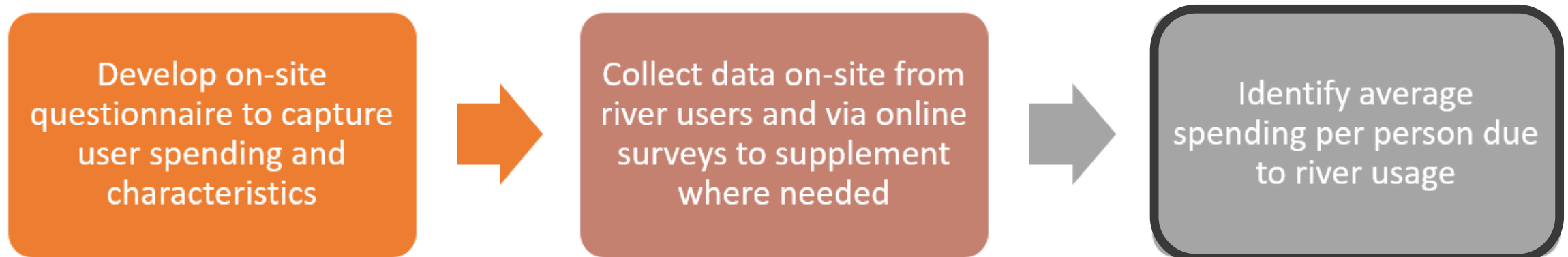


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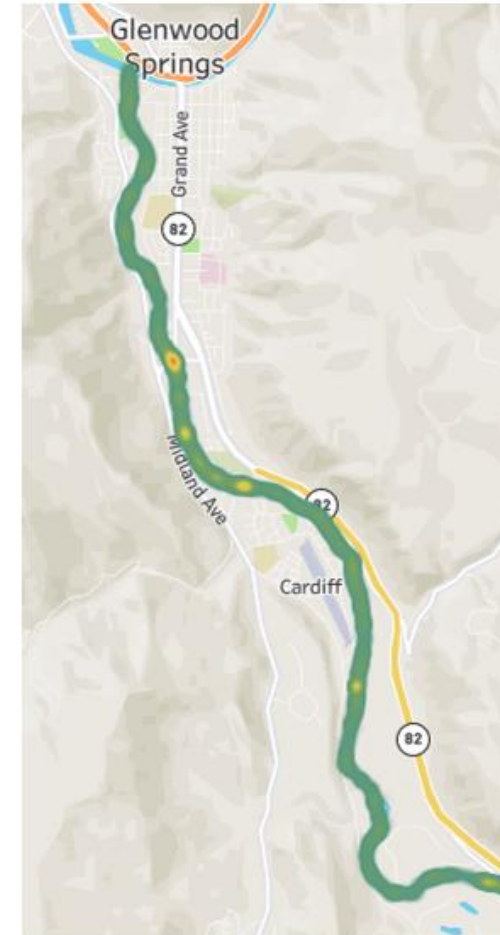
User Surveys

- **River user surveys identify the basket of goods and services purchased by river users on that outing (spending profile).**
 - What do people buy?
 - How much do they spend?
- **Intercept surveying (face-to-face surveys on-site) current river users is most effective because respondent data is captured while they are at the location.**
- **Online surveys through QR codes and/or fliers help to fill gaps.**



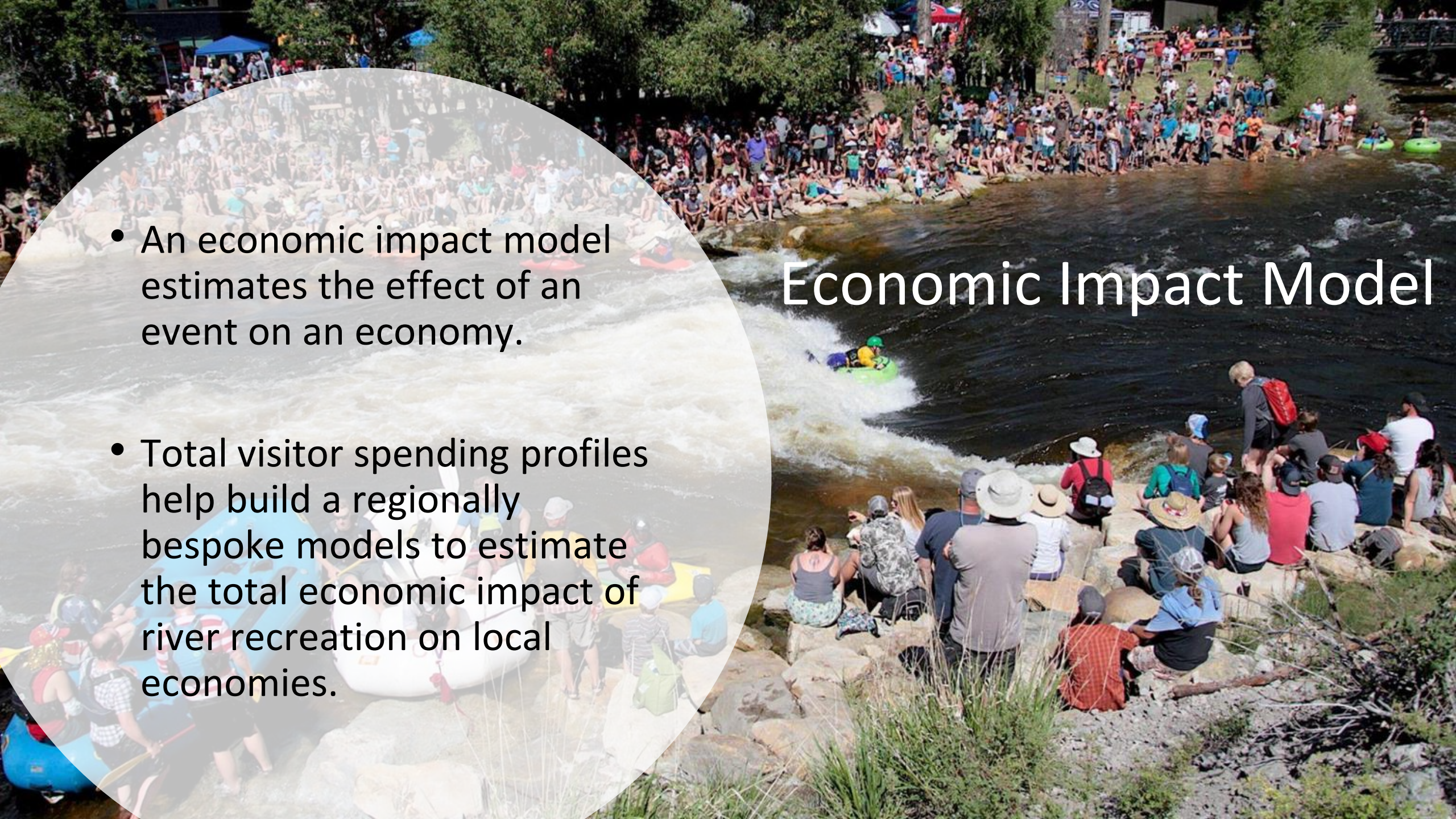
Mobility Data

- **Data provided by mobile device apps will enable an understanding of use of the river by time of season and stretch**
 - Where they came from? Where they go?
 - When they recreate?
 - How many people on the water?
- **Cross-validation of other methods quantifying use**
 - Vehicle counters
 - Intercept surveys
 - Web-based surveys

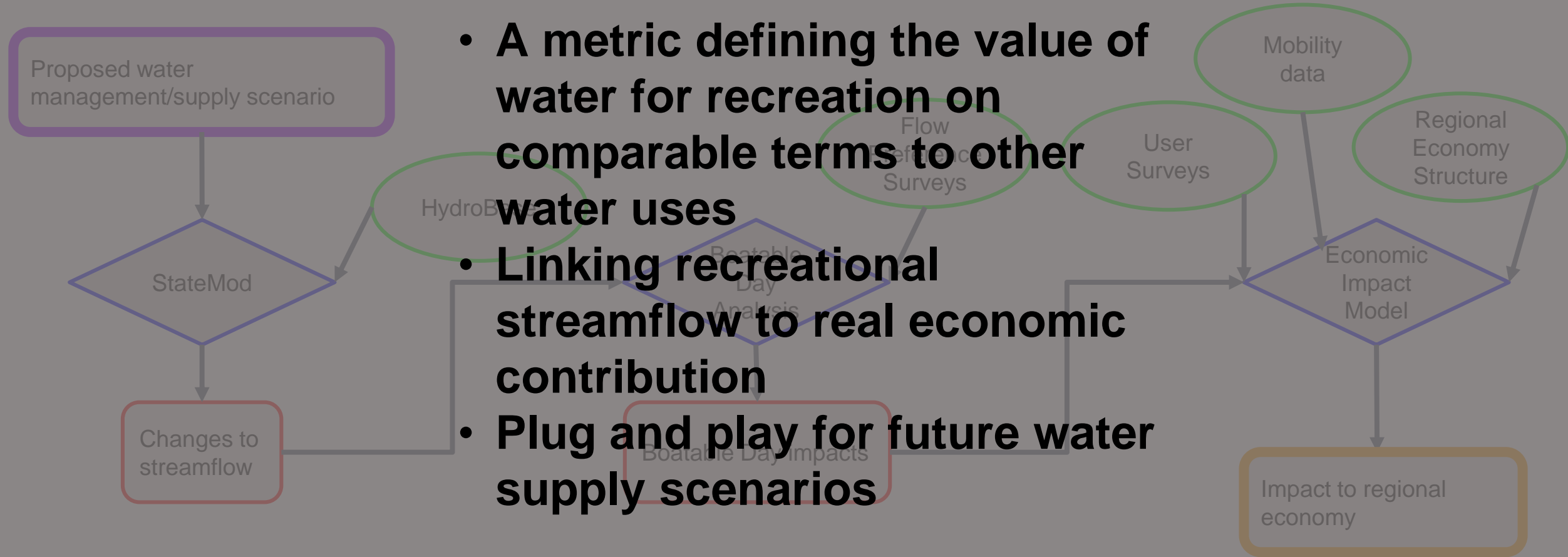


- An economic impact model estimates the effect of an event on an economy.
- Total visitor spending profiles help build a regionally bespoke models to estimate the total economic impact of river recreation on local economies.

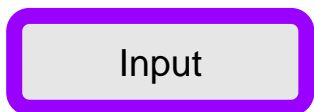
Economic Impact Model



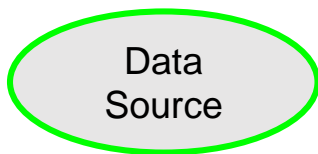
- A metric defining the value of water for recreation on comparable terms to other water uses
- Linking recreational streamflow to real economic contribution
- Plug and play for future water supply scenarios



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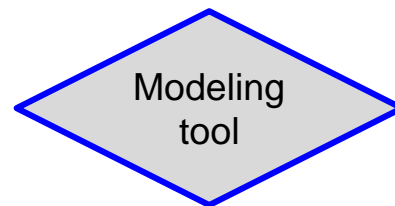
Input



Data Source



Intermediate result



Modeling tool



Output

A group of four people are sitting in a white inflatable raft on a river. They are wearing life jackets and hats. The raft has a blue logo on the side that says "BELKLUDGE". The background shows a riverbank with green vegetation and a blue sky with scattered clouds.

Thank you!

Please take our survey-
<https://www.surveymonkey.com/r/AWeconofriverrec>

