

# Coastal Cutthroat Trout Range-wide efforts: Data gaps, data needs, and future efforts

Kitty Griswold, Idaho State University, and Stephen Phillips, Pacific States Marine Fisheries  
Commission



“Healthy populations of CCT express a range of life history traits and migratory behaviors and have connectivity to other local populations that allows the subspecies to successfully respond to environmental changes over long- time periods.”

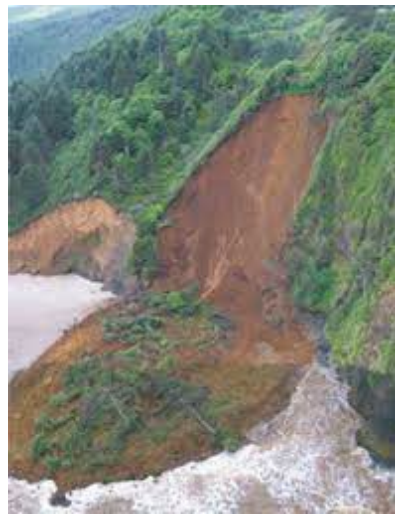


(unpublished, Griswold and Reeves)



Eric.chase , <https://commons.wikimedia.org/w/index.php?curid=7094317>

Coastal Cutthroat Trout have evolved and persisted in a dynamic environment that varies throughout their geographic range



# Popular, but somewhat niche sport fishery

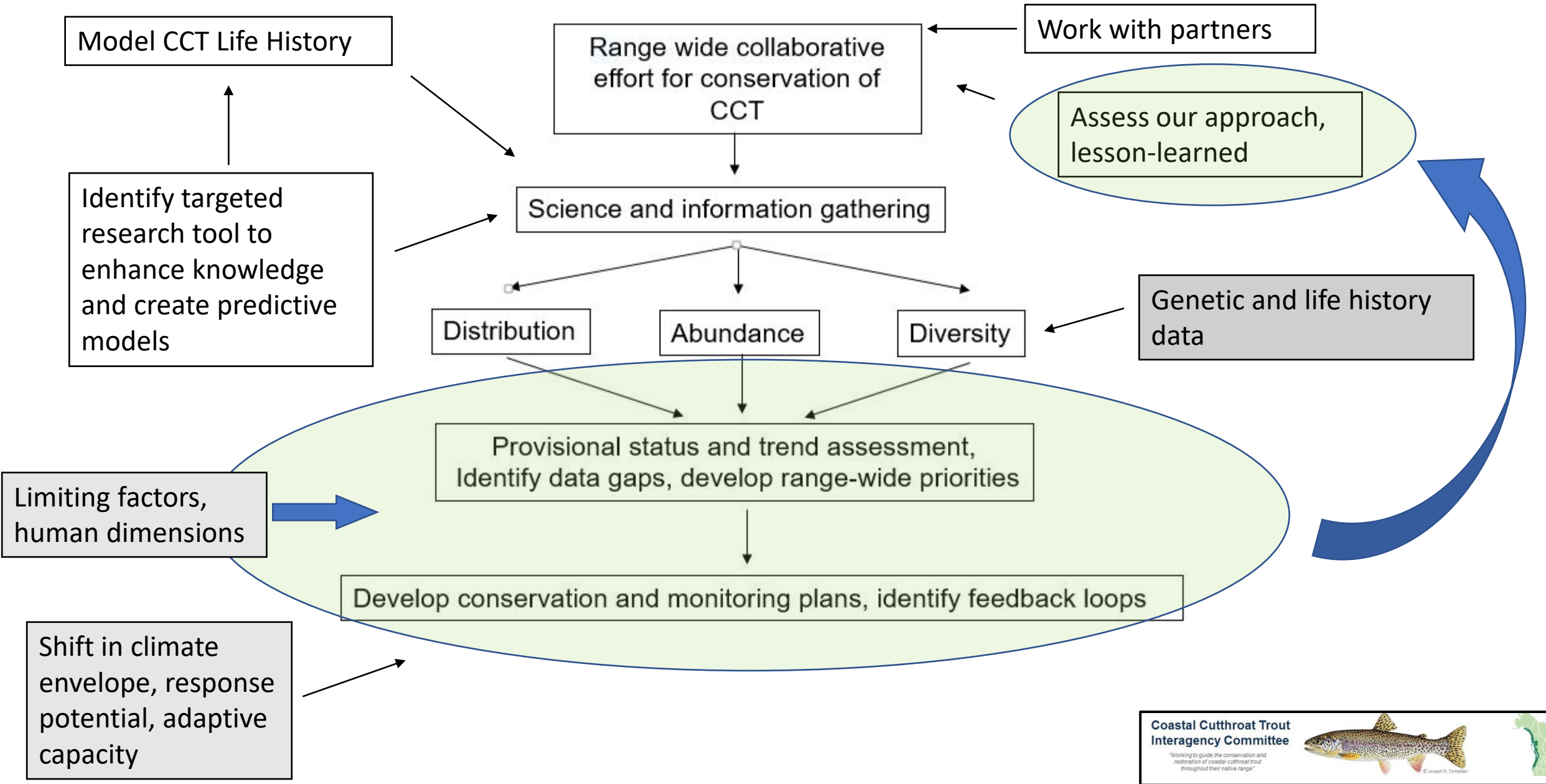


Sea-run cutthroat like to return to their rivers in fall, typically following the salmon and eating their eggs.  
(Mike Benbow photo)

## HUNTING AND FISHING

It's a great time to fish for  
sea-run cutthroat

# Updated Concept Map developed by CCTIC



We are going to need new tools, new ways of thinking...










# Combining the fields of Social Science and Ecology an example...Social-Ecological-Systems

Restoring stream connectivity in a high amenity/agricultural community in Teton County, Idaho. (Jossie et al. 2023 Ecological Appl.)



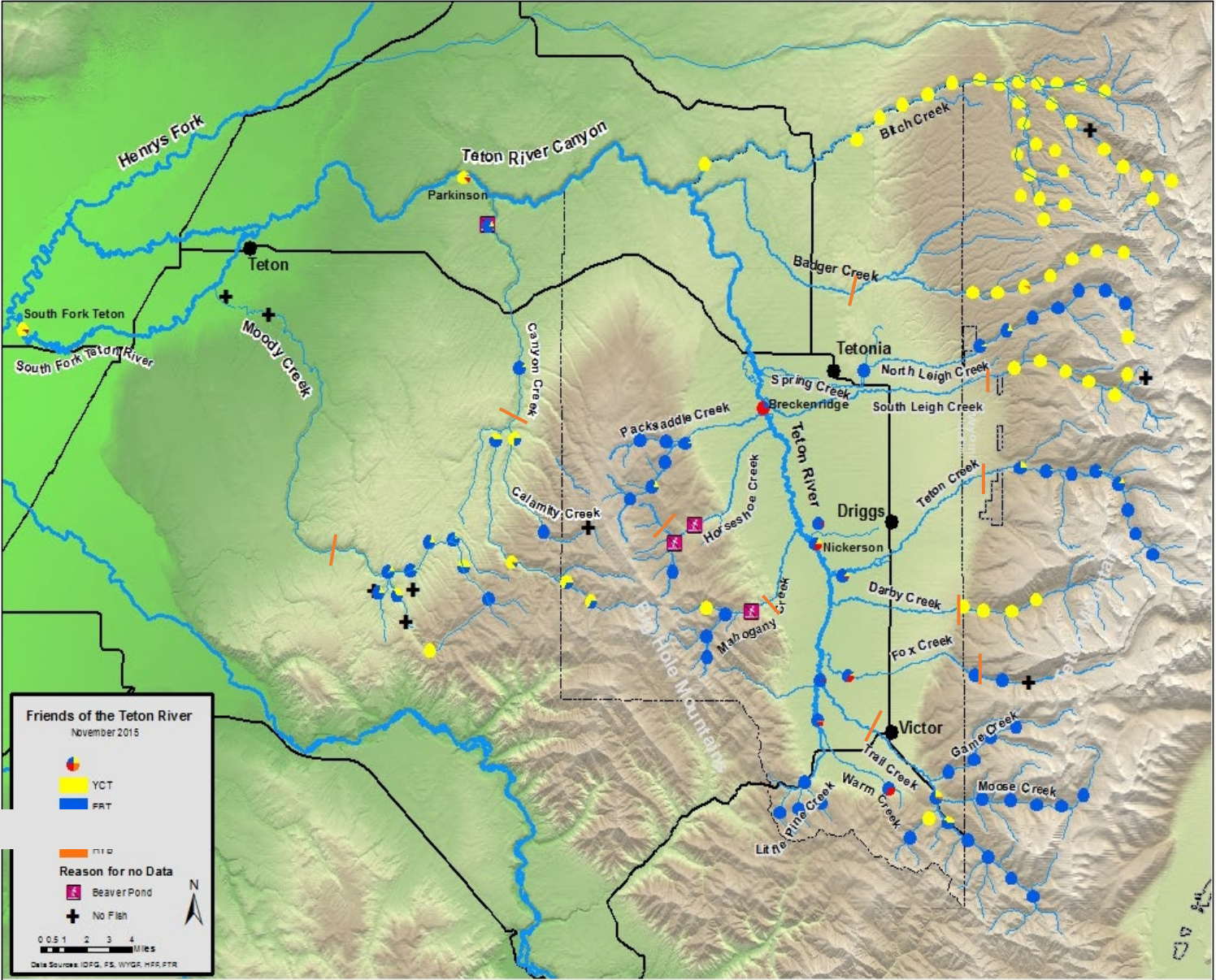


# Teton Trout Population Survey Sites 2015

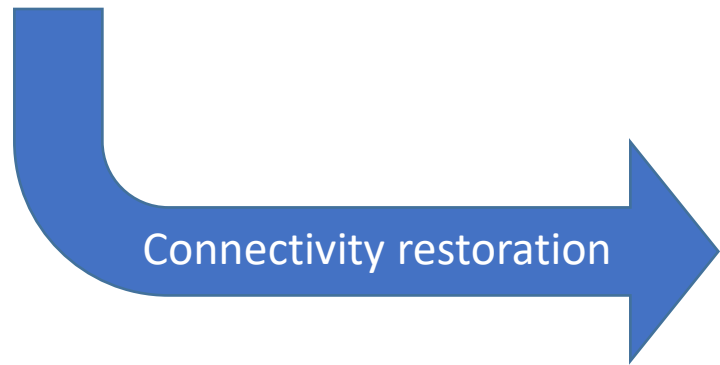
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Yellowstone cutthroat trout (YCT)
- 

Brook trout
- 

Rainbow trout (RBT)
- 
Brown trout

 Fish passage barrier

Friends of the Teton River 2015



(Jossie et al. 2023 Ecological Appl.)



(Jossie et al. 2023 Ecological Appl.)



(Jossie et al. 2023 Ecological Appl.)



Quantitative individual-based modeling

Qualitative mental modeling

**Δ Decisions**  
*Restoration projects  
Irrigation methods  
Management practices*

**Δ Connectivity**  
*Δ Flows  
Δ Barriers  
Δ Habitat conditions*

Migratory life history



Hybridization



Competition



Predation

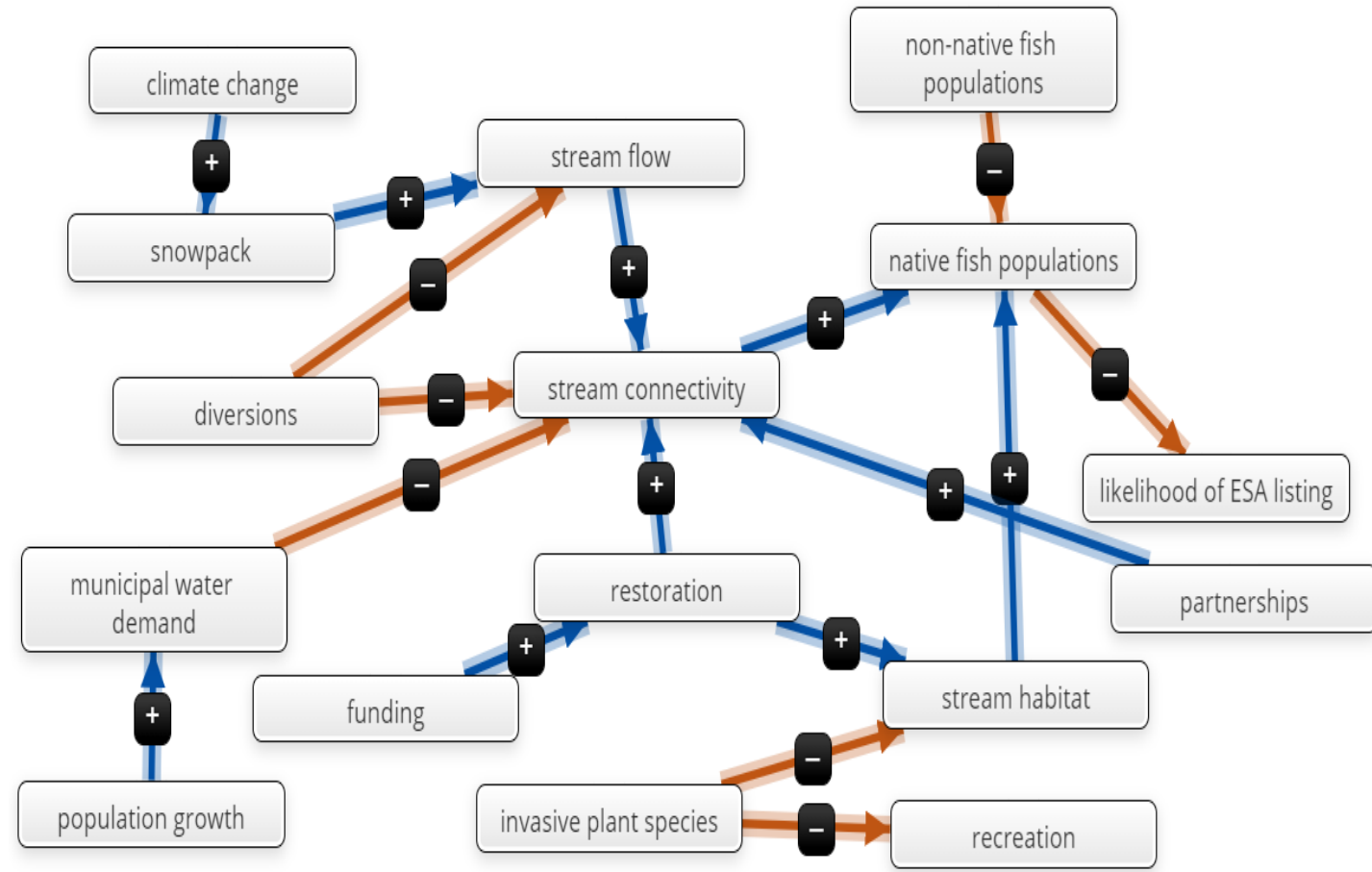


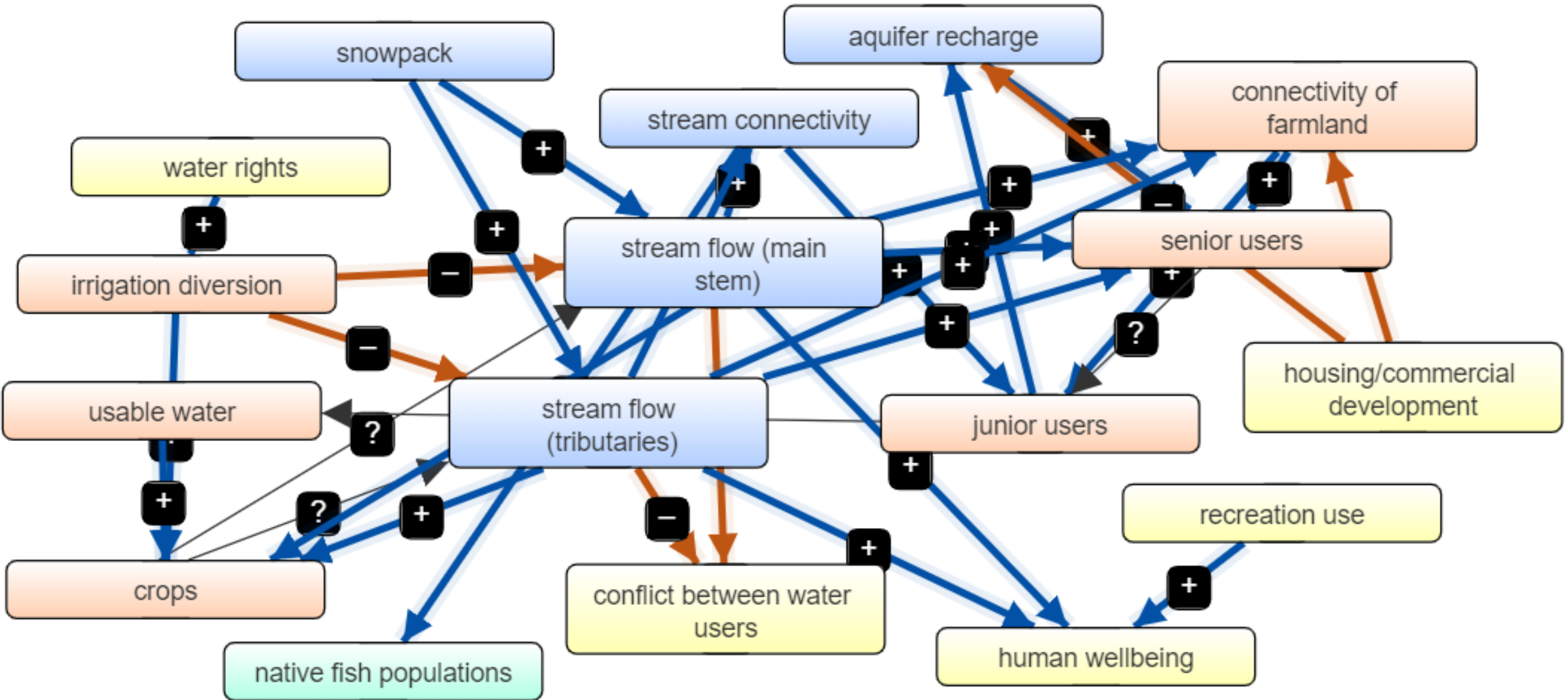
Human outcomes



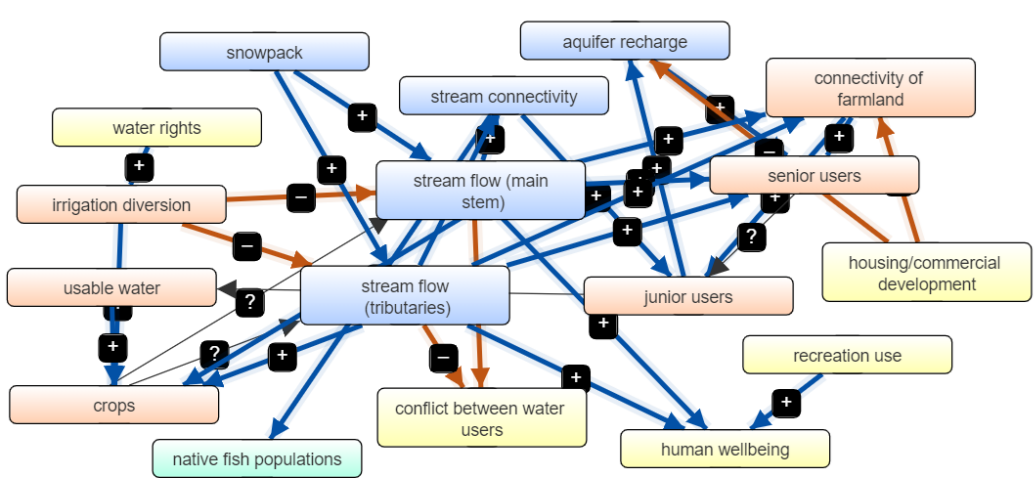
# Research question 1 methods: Mental modeling- change in stream connectivity

- 21 interviews with stakeholders representing fisheries, conservation, agricultural, recreation, and development interests
- Used MentalModeler software to draw the variables, processes, and interactions that exist in the Teton River social-ecological system, as described by the participant

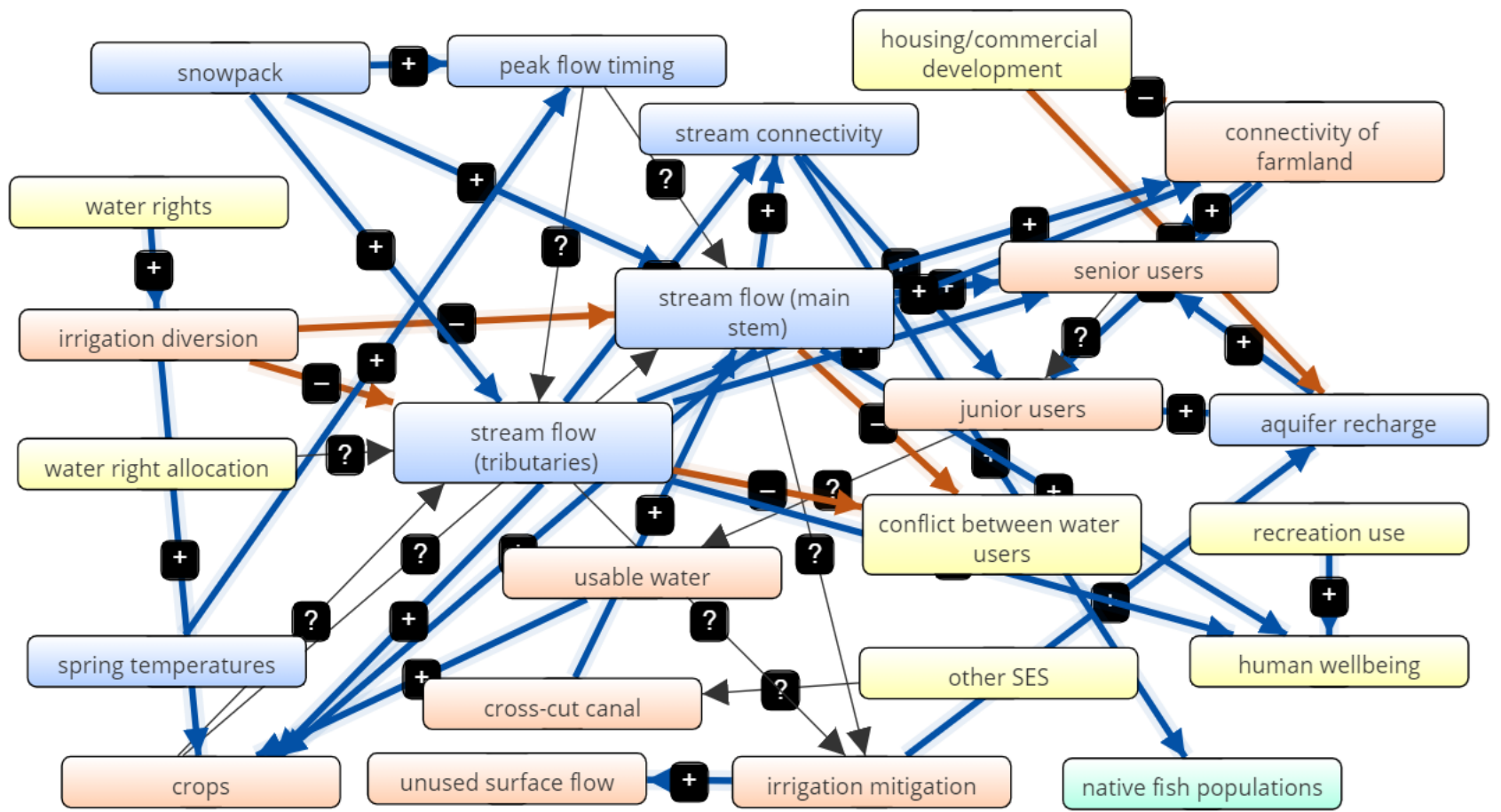


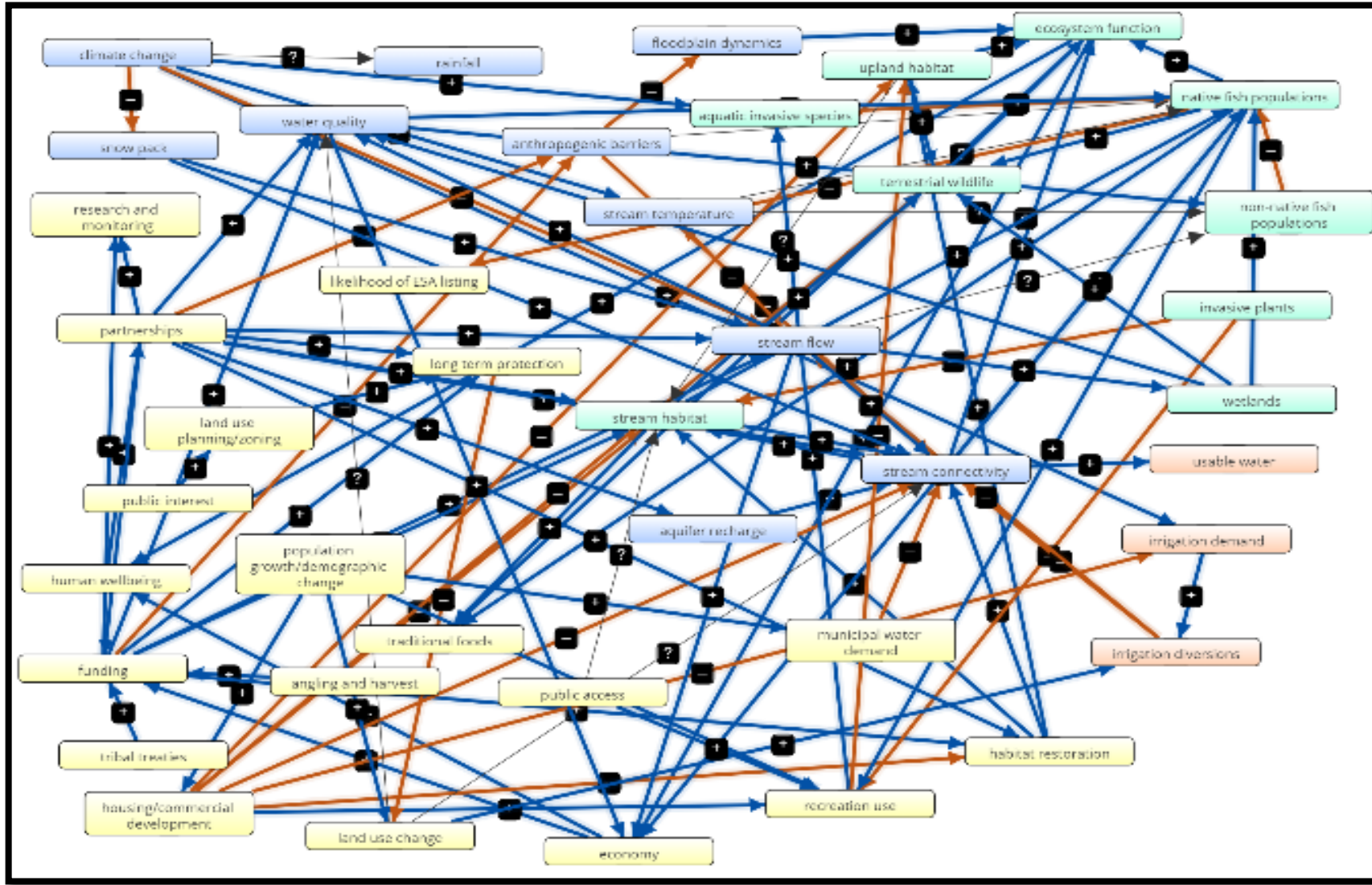


Individual (farmer)



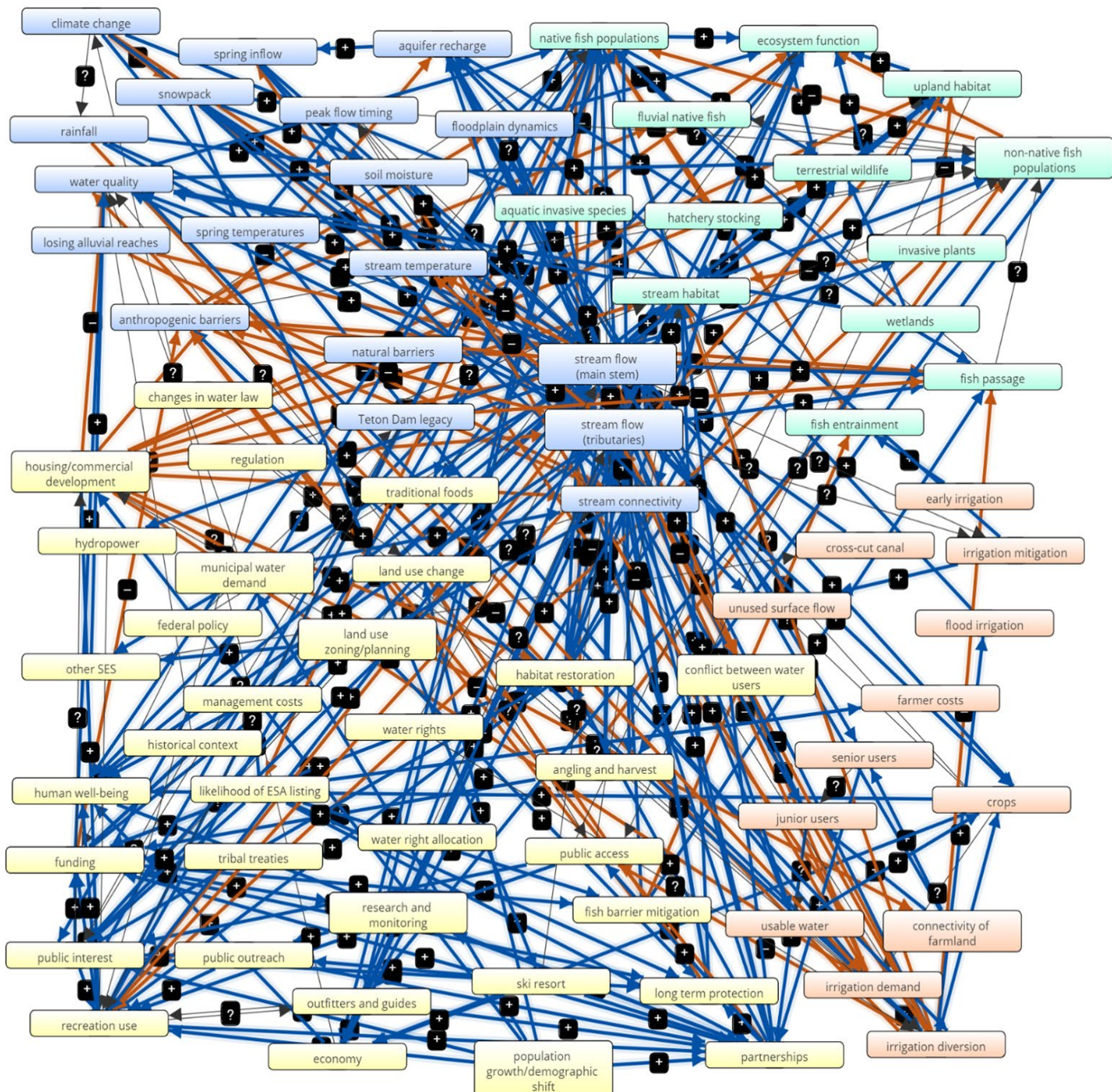
Individual (farmer)





Aggregated conservation group mental model





	participants	components	relationships
Agriculture	3	24	43
Conservation	5	41	103
Development	3	24	43
Fisheries	7	50	120
Recreation	3	28	51
Aggregate	21	77	304

All participants

# Reflection and challenge

- Conservation for CCT is complicated and nuanced, there are folks from many sectors who care and have worked towards a shared vision. There are increasingly formal ways to explore the intersection between ecology and human dimensions.
- The future is complex and our response needs to be local and adaptive within the broad context of landscape changes.
- PSMFC - continued opportunity and support for the CCT Interagency Committee to coordinate.
- Partnerships are key to many conservation success stories
  - Many examples on the ground for CCT...

# Thank you!

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Brett Holycross  
Kate Sherman  
Amy Stark

## ISU Trout-SES

Colden Baxter  
Morey Burnham

\*Current members  
**Program Committee**

