Salmonflies: the Hidden Key to Family Cohesion

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Background

The Henrys Fork watershed is a world-renowned fishing destination, located in South Eastern Idaho. This watershed provides many ecosystem services (ES) (i.e., the direct and indirect contributions of ecosystems to people) that maintain the local inhabitants' welfare. In this study, we are investigating the importance of *Pteronarcys californica,* or salmonflies, to trout production and fishing-related ecosystem services. Although anglers have noted that adult *P. californica* are seasonally available to trout in the Henrys Fork region, the scientific significance of this emergence has not been documented. *P. californica* directly contribute to opportune angling, which in turn provide many ecosystem services, including, cultural identity, relaxation, family cohesion, and a boost to the local economy.

Our study aims to explore the ecological and sociocultural connections *P. californica* share with fish populations, humans, and their contribution to ecosystem services in the watershed.

To do so we will:
(1) Explore what ecosystem services locals and visitors of the region perceive as most important.
(2) Examine the biological importance of salmonflies as sustenance for trout.

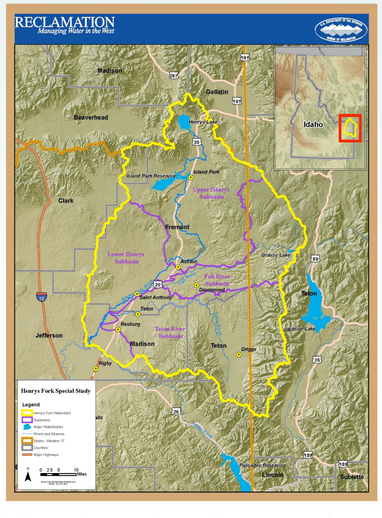

Figure 1. Location of the case study : the Henrys Fork River basin

Figure 2. Gastric lavage on a brown trout

Methods

Cultural ES assessment: exploring perceptions regarding ecosystem services provided by salmonflies

We plan to conduct over 300 face-to-face surveys with locals and visitors in the Henrys Fork watershed to explore their perceptions and traditional knowledge about salmonflies, trout, and ecosystem services.

Salmonfly sampling: study of trout DIET?

We also plan to collect 300 diets via a hook and line technique. The trout caught are then anesthetized in bucket containing water and clove oil. Once subdued, a non-lethal gastric lavage is performed to obtain their stomach contents. The trout are then held in a recovery net and released upon a return to their normal state of health.

Future Directions

We plan to continue doing both the trout sampling and the social perception surveys throughout the rest of the summer. By determining the abundance of *P. californica* in fish diets, and investigating the knowledge of the area's inhabitants, we hope to find a link between these invertebrates to many cultural ecosystem services. This study is unique in the fact that it combines both ecological and sociocultural components of ecosystem management on a small scale, which may provide insight for larger scale studies of ecosystems in the future.

Discussion

The movement to understand the human element of social-ecological systems has gained momentum over the last few decades. As habitat availability and quality change over time, it is of great importance to explore the contribution seemingly insignificant organisms contribute to sustaining the ecological system as a whole. This study aims to highlight the importance of *P. californica,* a small stream invertebrate that most people generally don't think about. However, they directly contribute to healthy trout populations, which in turn provide many cultural ecosystem services to humans. Our efforts to obtain peoples perceptions of stream invertebrates via face-to-face surveys has the potential to demonstrate the important ecosystem services received in an angling-centric economy, both from the socio-cultural and the ecological perspective.

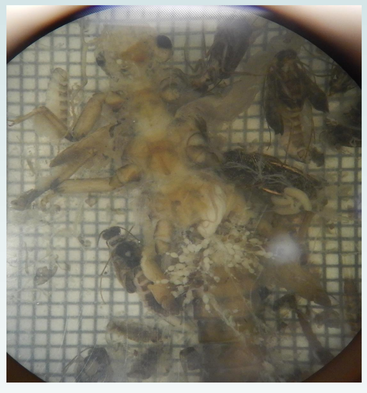

Figure 3. Zoomed in picture of a stonefly

Figure 4. Complete trout diet

Acknowledgements

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