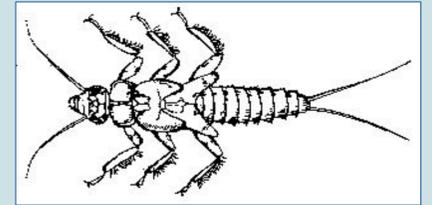


Macroinvertebrate Taxonomic Comparison Between Lower Eklutna River and Thunderbird Creek



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Background Information:

Dams are being removed globally, however scientists still do not fully understand what consequences dam removal may have on stream habitat.

Research Question-

How might dam removal influence macroinvertebrate communities?

Prior Research Done-

A prior study on the colonization of new streams in Glacier Bay found that turbid, glacier fed streams tend to have less macroinvertebrate taxonomic diversity. While clear water streams, that are a bit more developed, tend to have greater macroinvertebrate taxonomic diversity.

Hypothesis-

We theorize that with the recent removal of the Lower Eklutna River dam, suspended sediment being carried downstream is increased. Thus, leaving Lower Eklutna River a more turbid, and less hospitable environment for macroinvertebrates than the relatively undisturbed and clear waters of Thunderbird Creek.

Prediction-

We will find larger variance in taxonomic groups found in Thunderbird Creek.

Methods Field and Lab:

Field Methods-

- Examined different portions of stream habitat in 10-meter increments (up to 50 meters) for each site upstream of convergence.
- Divided up sampling areas in accordance to overall habitat percentage that different habitat zones made up.
- Collected samples using a standard kick net method.

Lab Methods-

- Thoroughly examined the sample in a subdivided tray separating the macroinvertebrates into a petri dish.
- Identified macroinvertebrates under dissecting microscopes.

Objective:

Analyze and compare the different taxonomic groups of macroinvertebrates found in our two study sites, and theorize what this means about overall habitat quality of the two streams.

Results:

We found more taxonomic groups in Thunderbird creek than in Lower Eklutna river.

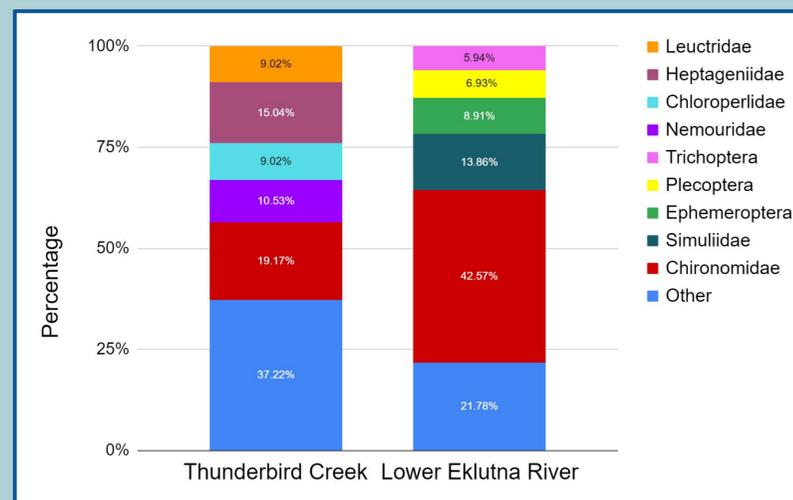


Figure 1-The relative abundance of the most prevalent taxonomic groups for each of our sites.

Conclusion:

Our results indicate that Thunderbird Creek is a more favorable habitat for a greater number of macroinvertebrates. The large amount of suspended sediment traveling downstream following the removal of the dam makes for a poorer habitat for macroinvertebrates in Lower Eklutna

Further research on the lasting impacts from dam removal is needed for scientists to better understand overall habitat quality, and potential long lasting consequences in regards to stream ecosystems.

Site Description:

Thunderbird Creek-

The creek runs clear, some mass wasting present as well as potential sediment traps. Majority of the area is characterized as riffle habitat.

Lower Eklutna River -

Water is very turbid, lots of suspended sediment present. Some sediment traps present. Vast majority of the area is run habitat. In 2018 a dam located upstream was removed allowing the trapped sediment to flow downstream.



Figure 2- A satellite image of our study site upstream of the convergence of Thunderbird Creek and Lower Eklutna River

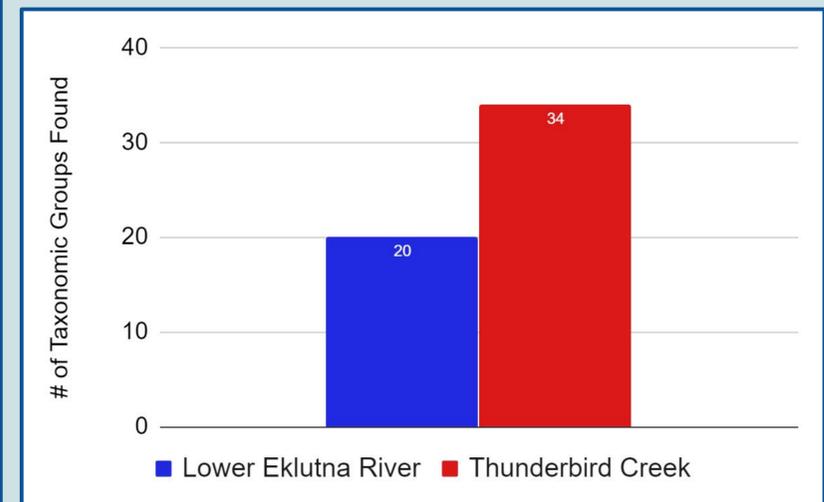


Figure 3- The total number of Taxonomic groups found at each site

References:

- Hudson, J., Hocker, K., & Armstrong, R. H. (2012). Aquatic insects in Alaska. Juneau, AK: Nature Alaska Images
- ALEXANDER M. MILNER (1987) Colonization and ecological development of new streams in Glacier Bay National Park, Alaska
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