Minnehaha ept-order species. the hopkins crossroad site also

Minnehaha Lab DiscussionTaxa RichnessIn terms of taxa richness, the Burwell House site was the most biodiverse because it had 15 different species where the Target Knollwood site had 12 different species and Hopkins Crossroad site has 13 different species.

Taxa EvennessIn terms of taxa evenness, the Hopkins Crossroad site was the most biodiverse with the highest Shannon Weiner Index value of 2. 131 where the Knollwood Target site had a Shannon Weiner Index value of 1. 764 and the Burwell House site has a Shannon Weiner Index value of 2.

1. Biotic IndexBoth the Target Knollwood site and the Hopkins Crossroad site had a nutrient pollution rating of " severe substantial pollution" with Target Knollwood having a value of 8. 308 and Hopkins Crossroad having a value of 7. 52.

The Burwell House site had the least nutrient pollution rating of " substantial pollution likely" and a biotic index value of 6. 245. EPT RatiosThe Target Knollwood site had the lowest rating of " poor water quality" with 0% EPT-order species. The Hopkins Crossroad site also had a rating of " poor water quality" with 11.

4% EPT-order species. The Burwell House site had the best water quality with the highest percentage of EPT-order species with 42. 7% and a rating of " marginal water quality". Percent Model AffinityBased on the percent model affinity statistic the Burwell House sight had the best water quality with a 48. 65% model affinity and a " moderate impact by pollution". The Hopkins Crossroad site had water " severely impacted by pollution" with a 32.

15% model affinity. The worst water is at the Target Knollwood site with water “ severely impacted by pollution” with a 16. 945% model affinity. As the creek moves downstream biodiversity decreases. The taxa richness value drops from 7 to 6 and the Shannon Weiner Index value drops from 1. 15 to 1. 08. The water quality also worsens as the creek moves downstream.

The Biotic Index Value increases from 8. 69 to 8. 74. A reason that there is such a low biodiversity is because as the creek moves downstream there is more pollution. There aren’t as many organisms that can tolerate a high amount of pollution. They cannot survive in the polluted water, thus the decreased biodiversity.

A reason that the water quality is so poor as the stream head downward is that as the water flows downstream it collected more pollutants. The further downstream the more polluted the water is. Water Quality TestsA water quality test that shows the difference between the best and the worst site is dissolved oxygen. The dissolved oxygen test measures the amount of available oxygen that is in the water. If there is a lower amount of dissolved oxygen, that can mean that the water is polluted with nutrients.

Too many nutrients in the water can cause cultural eutrophication. The Knollwood Target sight had a lower amount of dissolved oxygen with 6 ppm and the Burwell House has the highest amount of dissolved oxygen with 8 ppm. Another water quality test is the iron water quality test demonstrates that the Knollwood Target site was the worst, with 3 ppm, and that the Burwell House site was the best, with .

5 ppm. The iron water quality test measures the amount of iron in the water. The higher ppm the more iron there is in the water and the more industrial pollution is occuring.

The Knollwood Target has the highest amount of stormwater flow because it has the highest percentage of impervious surfaces with 80% of the surfaces being impervious. The stormwater run right off of these surfaces because water does not go through these surfaces. Stormwater runoff can impact the stream water negatively. Stormwater can collect different pollutants and then contaminate the water with those pollutants. Two things the community can do to reduce stormwater runoff include creating wetlands and installing impervious surfaces. Wetlands can act as a filter and take out pollutant that run through it. If the community makes a wetland, there will be less contamination of the stream because the stormwater will run through the wetland.

The community could also install pervious concrete. If they change their impervious concrete with pervious concrete then less stormwater will enter the stream. One action the community could take to reduce the amount of water contamination from stormwater is to plant a buffer strip. Buffer strips are area of land with vegetation.

Buffer strips, like wetlands, act as a filter. When contaminated water runs through buffer stips, the plants remove the pollutants. If buffer strips are installed, then less contaminated water enter the stream.

Another action is to reduce the use of fertilizer around the stream. Fertilizer runoff can pollute the water and excellerate the eutrophication process. If

the community reduces the fertilizer use less will run into the stream and contaminate the water. The main pollutant in a farm-based community would be fertilizer. When it rains, the fertilizer that the farmer put on the land runs off into the local waterways. The fertilizer in the water causes the algae to grow at a faster rate. This fast growth is called algae bloom.

Eventually when the algae dies the bacteria eat it as it decomposes. That causes the oxygen levels to go down and it makes it so that no organisms can live in that area. This whole process is called cultural eutrophication. Three tests you could use to monitor fertilizer pollution include dissolved oxygen, nitrate, and phosphate. Dissolved oxygen measure the amount of available oxygen there is in the water.

If the dissolved oxygen level drops it is an indication of cultural eutrophication. Testing the nitrate and phosphate levels is a direct indication of the occurrence of fertilizer in the water. Nitrogen and phosphorus are both ingredients found in fertilizer. If the nitrate and phosphate levels increase then there is fertilizer in the water. To test the effects of road salt of native fish survival and growth, I would set up various container with different concentrations of road salt. Each container would be filled with 20 fish.

I would leave the fish in the water for two weeks. After two weeks I would see how many fish are still alive. Independent: Concentration of road salt in the waterDependent: The amount of fish that survivedControl: A container with completely clean water. This would be the control because I wouldn’t change anything about the water. Hypothesis: The most salt there is in the water, the less fish will suvive.