

Hydrosphere Project Water Quality Testing

Background: We all spend the majority of our day within the Winooski watershed. It is our responsibility to be responsible stewards to this land to protect the river for future generations. In this project you will be identifying potentially harmful substances and physical properties that are markers of overall water quality in Winooski River. You will be conducting research into these substances and properties as well as conducting field based water quality testing of the Winooski River. In addition you will identify potential sources influencing the level of these markers and propose potential solutions to keep these markers within acceptable levels.

Water Quality Factors

Define:

Water chemistry can be tricky, but there are several factors that are important to monitor with respect to the quality of the water and overall health of the ecosystem. Some of the factors are chemical, and some are physical properties. For each factor you will monitor you need to determine the following:

<p>1: Temperature</p> <ul style="list-style-type: none">○ Chemical formula of substance or description of factor ○ Typical units of measure ○ Acceptable level or level of concern ○ Reason for concern(s) if above/below acceptable level ○ Possible source(s)/conditions contributing to factor	<p>2: Dissolved Oxygen (DO)</p> <ul style="list-style-type: none">○ Chemical formula of substance or description of factor... include polarity ○ Typical units of measure ○ Acceptable level or level of concern ○ Reason for concern(s) if above/below acceptable level ○ Possible source(s)/conditions contributing to factor.... including the effect of Temperature on DO
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<p>3: Nitrate</p> <ul style="list-style-type: none"> ○ Chemical formula of substance or description of factor... include polarity ○ Typical units of measure ○ Acceptable level or level of concern ○ Reason for concern(s) if above/below acceptable level ○ Possible source(s)/conditions contributing to factor 	<p>4: Phosphate</p> <ul style="list-style-type: none"> ○ Chemical formula of substance or description of factor... include polarity ○ Typical units of measure ○ Acceptable level or level of concern ○ Reason for concern(s) if above/below acceptable level ○ Possible source(s)/conditions contributing to factor.
<p>5: Turbidity</p> <ul style="list-style-type: none"> ○ Chemical formula of substance or description of factor ○ Acceptable level or level of concern ○ Reason for concern(s) if above/below acceptable level ○ Possible source(s)/conditions contributing to factor 	<p>6: pH</p> <ul style="list-style-type: none"> ○ Chemical formula of substance or description of factor ○ Acceptable level or level of concern ○ Reason for concern(s) if above/below acceptable level ○ Possible source(s)/conditions contributing to factor

<p>7. Salinity</p> <ul style="list-style-type: none"> ○ Chemical formula of substance or description of factor ... include polarity ○ Acceptable level or level of concern ○ Reason for concern(s) if above/below acceptable level ○ Possible source(s)/conditions contributing to factor 	<p>8. Oils</p> <ul style="list-style-type: none"> ○ Chemical formula of substance or description of factor ... include polarity ○ Acceptable level or level of concern ○ Reason for concern(s) if above/below acceptable level ○ Possible source(s)/conditions contributing to factor
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Potential solutions to mitigate runoff issues...

Identify:

Sort the water quality factors into those that would be directly impacted by runoff, and those that would not be.

Potential **local (in the vicinity of MHS)** sources and conditions, including the time of year, that would elevate OR depress the levels for any factors tested and/or under consideration.

(continued on back....Potential solutions to mitigate runoff issues...)

Propose:

1. Propose **solutions to help mitigate or improve any areas of concern** (potential or realized) that your group identified in your testing.

2. Propose **solutions to mitigate or improve runoff issues associated with the MHS mud lot** that would potentially effect the water quality factors you have studied in this project.