



MINNESOTA STATE ENVIROTHON

## 2019 MN State Envirothon

## Wetlands/Aquatics Study Guide

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### Hydrology

- The water cycle: <https://water.usgs.gov/edu/watercyclesummary.html>
- Climatology website: <https://www.swac.umn.edu/spring-2018> Watch the Recording of Kenny Blumenfeld's January 24 Lecture "Managing Minnesota's Changing Climatology and the Case for Myopia.
- <https://www.pca.state.mn.us/sites/default/files/wq-ws4-13b.pdf>

### Land use/land cover

- Ratios/land use: <http://onlinelibrary.wiley.com/doi/10.1002/2015WR017637/full>
- Crops, land cover, timing and connections to hydrology  
<http://www.dnr.state.mn.us/whaf/about/scores/hydrology/perennial.html>

### Functions

- Wetlands:  
<http://www.dnr.state.mn.us/wetlands/index.html>  
[https://www.aswm.org/pdf/lib/14\\_mapping\\_6\\_26\\_06.pdf](https://www.aswm.org/pdf/lib/14_mapping_6_26_06.pdf)  
<https://www.nature.com/scitable/knowledge/library/ecology-of-wetland-ecosystems-water-substrate-and-17059765>
- Lakes:  
<https://www.pca.state.mn.us/sites/default/files/lakes-guidetoprotection-2.pdf>
- Groundwater: <https://www.pca.state.mn.us/water/state-groundwater>

### Actions/Adaptations

- Restoration and Protections Strategies:  
<https://www.pca.state.mn.us/sites/default/files/lakes-guidetoprotection-2.pdf>
- Climate Adaptions: <https://www.pca.state.mn.us/sites/default/files/p-gen4-07.pdf>