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Senior Capstone in Environmental Science

2009

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Annotated Bibliography
Watershed/GIS group

Aerial Image of the Belgrade Lakes Region. 2007. Raw data. National Agricultural Imagery Program, Salt Lake City, UT.

A digital aerial image of the Belgrade Lakes ME region. This image, along with downloaded orthophotoquads, was used to digitize land use types for use in the land use map, and erosion and development models. Not the entire extent of the photograph was used.

Bouchard, Roy. Belgrade Lakes Watershed Boundaries. June 2008. Raw data. Maine Department of Environmental Protection, Augusta, ME.

Watershed boundaries were necessary for the Biology Department of Colby College's summer 2008 study of land use patterns in the Belgrade Lakes. Professor David Firmage contacted Roy Bouchard at the Maine Department of Environmental Protection and obtained shapefiles for the watershed boundaries of all the Belgrade Lakes. The boundary for Salmon Lake/McGrath pond was used in this study.

Colby Environmental Assessment Team. *A Watershed Analysis of Long Pond North.* Waterville: Colby College, 2007. Print.

Information from this report was used for the model methodology of the upcoming Salmon Lake/McGrath Pond study. The methods section in the Erosion Potential, Septic Suitability and Erosion Impact models are useful to the new study.

Colby Environmental Assessment Team. *A Watershed Analysis of Long Pond South*. Waterville: Colby College, 2008. Print.

Information from this report was used for the model methodology of the upcoming Salmon Lake/McGrath Pond study. The methods section in the Erosion Potential, Septic Suitability and Erosion Impact models are useful to the new study. There was little difference in methodology between the two Long Pond reports, but it was useful to read how the two groups approached the same problems using GIS.

Colby Environmental Assessment Team. *A Watershed Analysis of Pattee Pond*. Waterville: Colby College, 2009. Print.

Information from this report was used for the model methodology of the upcoming Salmon Lake/McGrath Pond study. The methods section in the Erosion Potential, Septic Suitability and Erosion Impact models are useful to the new study. The methodology in the creation of the bathymetry map of Salmon Lake/McGrath pond was also used.

GIS: A Guide to Geographic Information Systems. 26 September 2009. Web site. ESRI (Environmental Systems Research Institute). http://www.gis.com

The website for the GIS software used by the Colby Environmental Assessment Team. This website contains general information about Geographic Information Systems as well as specifics on the applications and proper use of the software.

Kennebec County, ME Soil Data. 15 Dec. 2008. Raw data. Ftp://soildatamart-export.sc.egov.usda.gov/export/e_990439/soil_me011.zip, Washington, D.C.

This is the online location of a downloadable shapefile feature class containing raw data for properties of soil located in Kennebec County, ME, the location of Salmon Lake and McGrath Pond.

Maine Office of GIS Data Catalog. Summer 2008. Raw data. Http://megis.maine.gov/catalog/catalog.asp, Augusta, ME.

This is the online location of downloadable GIS layers for the state of Maine. Layers downloaded include ponds, streams, roads, town boundaries, wetlands, orthophotoquads, DEM and conservation land.

Meals, Donald W., Alan E. Cassell, David Hughell, Lynette Wood, William E. Jokela, and Robert E. Parsons. "Dynamic spatially explicit mass-balance modeling for targeted watershed phosphorus management." Agricultural Systems and Environment 127.3 (Sept 2008): 189-200.

This article explores the risk for phosphorus loading in lakes by creating a GIS model that combines land use and spatial data to determine run-off risk. This model could be helpful in determining parameters for future models to be created.

Norton, S. A., Coolidge, K., Amirbahman, A., Bouchard, R., Kopáček, J. and R. Reinhardt. 2008. Speciation of Al, Fe, and P in recent sediment from three lakes in Maine, USA. Science of the Total Environment. 404: 276-283.

A study of phosphorus and other nutrients found in the sediments of three Maine lakes, including Salmon Lake.

Physical Soil Properties Kennebec County, ME. 15 Dec. 2008. Raw data. Natural Resources Conservation Service, Washington, D.C.

A report generated for physical soil properties of Kennebec County ME. The report contains many soil attributes for each soil type occurring in the county. The attributes of interest were k-factor, used for the k-factor map and the four GIS-based raster models, and available water capacity, used for the soil permeability map.

Tong, S. TY, and W. L. Chen. "Modeling the relationship between land use and surface water quality." Journal of Environmental Management 66.4: 377-93.

This article is a study on GIS models for land use and nutrient levels in water bodies, especially phosphorus.