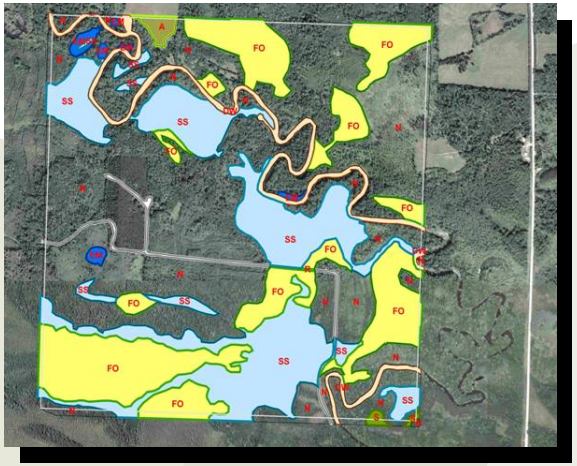
Project Status

Sampling to detect changes in wetland quantity began in 2006 with acquisition of aerial photographs for the first panel of plots. The first complete sampling cycle will conclude in 2008. Wetland quality sampling began in 2007. An initial status report on wetland quantity and quality, including information on the distribution and extent of wetlands based on size and type should be released in 2009. Full analysis and reporting of wetland trends cannot be done until two sampling cycles have been completed in 2011. However, initial trend estimates may be provided sooner based on analysis of the 250 annually-sampled common plots.



Example of a wetland trends sample plot showing mapped and classified wetlands

Contacts

Doug Norris
Minnesota DNR
500 Lafayette Road
St. Paul, MN 55155
(651) 259-5125
doug.norris@.dnr.state.mn.us

Mark Gernes
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155
(651) 297-3363
mark.gernes@pca.state.mn.us

Minnesota's Wetland Assessment, Monitoring and Mapping Strategy

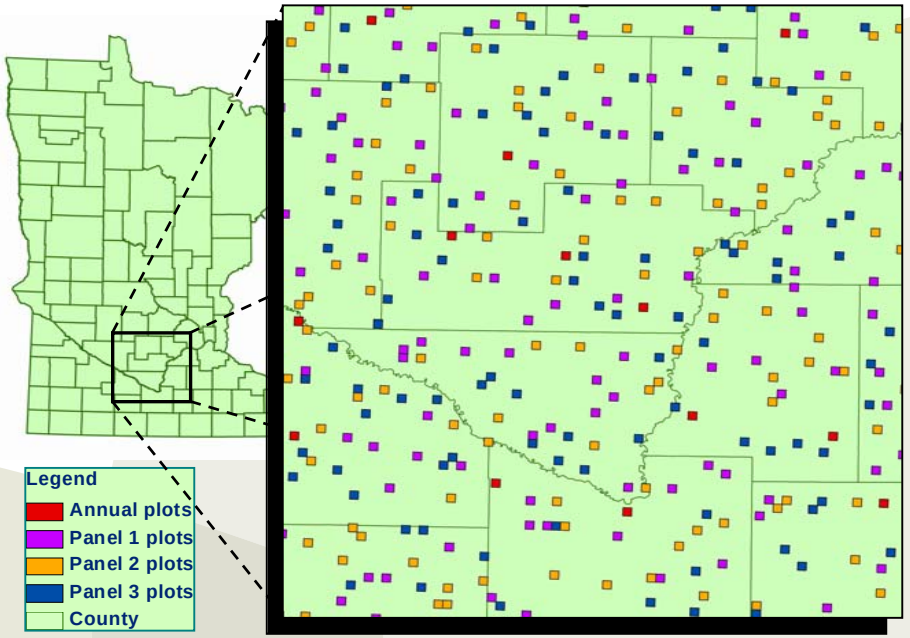
Minnesota's Wetland Assessment, Monitoring and Mapping Strategy

Assessing Wetland Status and Trends in Minnesota

Wetland Benefits:

- Water Quality Improvement
- Fish and Wildlife Habitat
- Flood Abatement
- Stream Flow Maintenance
- Carbon Storage
- Recreation
- Education

The goal of this project is to monitor gains and losses in both the quantity and quality of wetlands in Minnesota. This is being accomplished through an intensive, repeated sampling design using aerial photography and on-the-ground wetland assessment.



RANDOM SAMPLE SURVEY PLOTS IN A PORTION OF MINNESOTA

Comprehensive Wetland Monitoring

Enacted in 1991, the Minnesota Wetland Conservation Act (WCA) established state policy to:

- achieve no net loss in the quantity, quality and biological diversity of Minnesota's existing wetlands and;
- increase the quantity, quality and biological diversity of Minnesota's wetlands by restoring or enhancing degraded or drained wetlands.

While it's clear that the WCA and other regulatory and conservation programs have protected and restored thousands of wetland acres, we lack objective data on the extent to which the no-net-loss goal is being achieved. To remedy this problem, an interagency group, including the Department of Natural Resources, Pollution Control Agency, Board of Water and Soil Resources, Minnesota Department of Agriculture and the U.S. Fish and Wildlife Service developed a comprehensive wetland assessment and monitoring strategy, available at: http://files.dnr.state.mn.us/eco/wetlands/wetland_monitoring.pdf. One component of this strategy is a random sample survey designed to provide current, objective data on trends in the amount and quality of the state's wetlands.

RANDOM SAMPLE SURVEY

For this survey, nearly 5,000 1-square mile sample plots have been randomly established around the state. For sampling purposes, these plots are divided into three statewide "panels" of about 1,800 plots. Each year, aerial photos are taken of all the plots in a panel, so that each plot is sampled on a three-year cycle. 250 plots have been assigned as "common" plots and are sampled annually to examine how climatic factors may be associated with observed changes. All of the wetlands within a plot are analyzed and mapped digitally. By comparing successive aerial photos of the same plot, gains and losses in the amount of wetlands can be identified and statistically extrapolated to provide statewide data on trends in wetland quantity.

FIELD-BASED WETLAND QUALITY ASSESSMENT

CLASSIFICATION

One of the project objectives is to detect gains/losses in various wetland types. Therefore, the wetlands in each sample plot are classified as one of the following:

- Emergent
- Aquatic bed
- Forested
- Scrub-shrub
- Unconsolidated bottom

Any of these classifications can also be classed as cultivated. In addition, the wetland hydrologic regime is classified as either seasonal, saturated or inundated.

WETLAND QUALITY

To assess trends in wetland quality, a subset of about 60 depressional wetlands within each of the three major ecological provinces has been randomly selected from the statewide plots. Each year, staff from the Pollution Control Agency conducts on-the-ground assessments for wetland condition and function for all of the selected wetlands in one of the ecological regions. Thus, wetlands within each region are assessed on a repeating three-year cycle, allowing for statistical estimates of trends in wetland quality. New indicators are under development that will enable the condition of all types of wetlands to be assessed beginning in 2010.