

From Shore to Shore

A publication of the University of Minnesota Extension
Water Resources Team

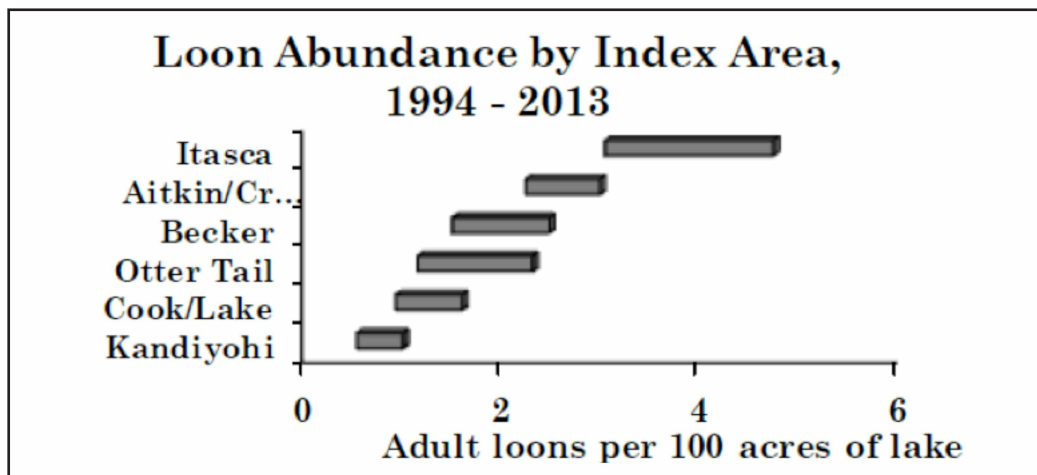
Spring 2015

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Minnesota Loon Monitoring Program

Adapted from the Minnesota Department of Natural Resources 2013 Annual Loon Monitoring Report



Loon abundance between 1994-2013 within each of the six MLMP Index Areas.

The Minnesota Loon Monitoring Program (MLMP) was implemented in 1994 to detect changes in Minnesota's loon population and in the health of their lake habitats in Minnesota. With the help of over 1,000 volunteers, the DNR's Non-Game Wildlife Program has completed loon surveys on six 100-lake "Index Areas" annually since 1994. After twenty years of data collection, MLMP results indicate that Minnesota's loon population remains stable. An average of 66% of the lakes within the Index Areas have had loons present during this twenty-year period.

Results of adult loons in the 2013 survey are consistent with past years of the MLMP. The number of adults observed per 100 acres of lake has remained stable between 1994-2013 for four of the six Index Areas; an increase was detected in the Otter Tail Index Area and a marginal decrease was detected in the Becker Index Area over this time period. The

percent of lakes occupied by loons has remained stable or increased in all six areas. While the average number of juvenile loons reported per pair of adults is highly variable from year to year, juvenile reports have remained stable in four of the six areas. Juvenile reports significantly declined in the Becker and Itasca Index Areas, although low counts in 2013 were likely driven by the late ice-out that delayed nesting and caused some loons to still be incubating eggs during the survey period. The abundance of loons varies widely across the state, and continues to be lowest in the southwest (Kandiyohi), and highest in the north central (Itasca) Index Area.

For more information, including the full 2013 Annual Report and how to become a volunteer, visit www.dnr.state.mn.us/eco/nongame/projects/mlmp_state.html. ■



Calendar of Events

For the most current calendar items and more details, visit www.extension.umn.edu/environment/water/calendar/.

Recommendations for Damaged Shores

Date: May 19
Location: Garrison, MN
Contact: Eleanor Burkett, 218-828-2326, burke044@umn.edu

NEMO workshop: City of Minnetonka Planning Commission

Date: May 28
Location: Minnetonka, MN
Contact: John Bilotta, 612-624-7708, jbilotta@umn.edu

Let it Rain: Using Rain Gardens and Rain Barrels

Date: May 29
Location: Windom, MN
Contact: Karen Terry, 218-770-9301, kterry@umn.edu

Creating a Rain Garden

Date: May 30
Location: Windom, MN
Contact: Karen Terry, 218-770-9301, kterry@umn.edu

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Second Homeowners Matter to Economic Development in Central, West Central Minnesota

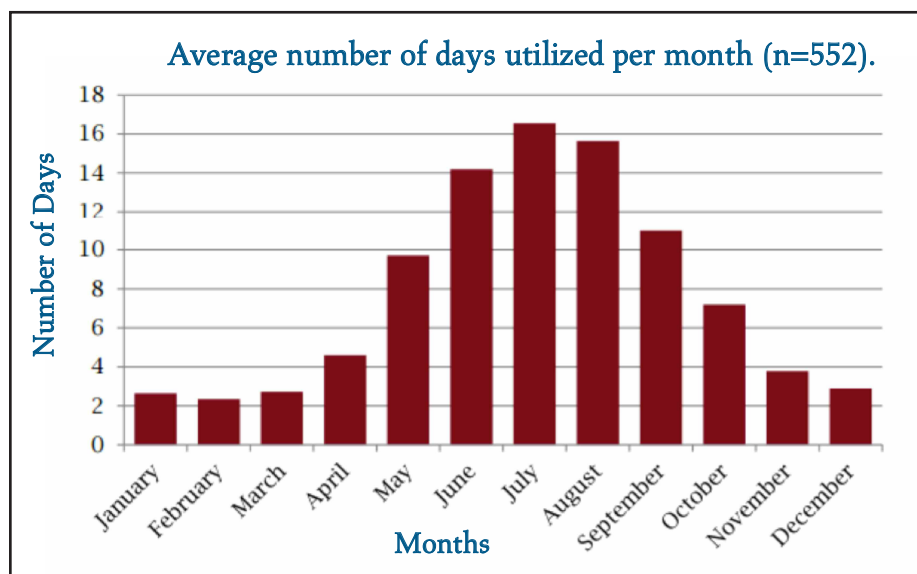
Joyce Hoelting, U of M Extension, 612-625-8233, jhoeltin@umn.edu

The social and economic impacts of second homeowners on communities near second homes are significant, and their impact on Greater Minnesota's civic and economic life could increase as second homes become permanent over the next decade. These are some of the findings of a survey conducted by University of Minnesota Extension Community Economics Educators.

The study surveyed 573 second homeowners using a random sample of homeowners in the counties of Aitkin, Becker, Cass, Crow Wing, Douglas, Hubbard, Otter Tail and Pope.

"A few findings stood out," said Merritt Bussiere, Community Economics Extension Educator located in the Brainerd Extension Regional Office and a member of the study team. "First, we estimate that second homeowners each bring median annual spending of \$3,252 to businesses in nearby communities. So local businesses would do well to target the needs and interests of this customer segment."

Since 56% reported that they plan to transition permanently to their second homes in the future, second homeowners can become a resource to bring new community and economic vitality to Greater Minnesota towns. They are



also likely to challenge communities to cope with changes with regard to infrastructure and environmental impacts.

The study reported that respondents are very active in their first home communities: 64% volunteer for a community organization; 47% hold leadership roles and 16% have served in a public office. Further, more than half of second homeowners responding to the survey have experience in business ownership, operation and management. "It is clear than respondents feel very attached to their second homes, but less attached to the

communities near their second home," said Bussiere. "Migrating these skills and resources to Greater Minnesota communities could create a civic boon."

The study also asked second homeowners which issues most concern them. The quality of water and other natural resources held the most significant importance. When asked to rank amenities and services in their second homes, Internet service received the poorest ranking.

"Given stated intentions to move permanently to their second home, 46,000 permanent households might migrate to the study area over the next ten years," said Bussiere. The study, funded by the Economic Development Administration Center at the University of Minnesota Crookston, was designed to inform local businesses, governments, non-profits and community development professionals as to the opportunities that second homeowners offer to their communities.

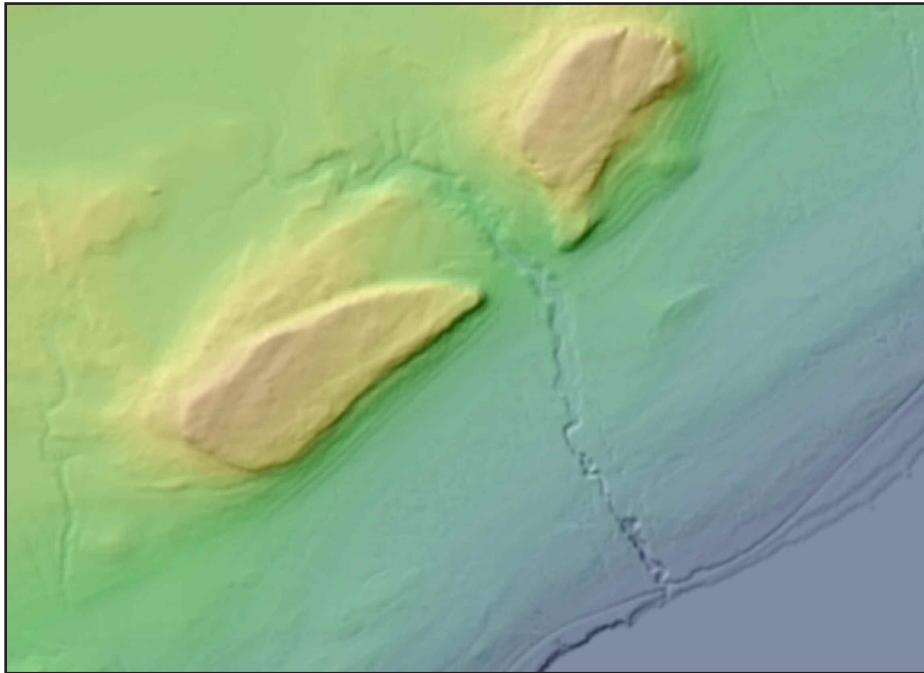
The study can be accessed at <http://z.umn.edu/2ndhomeowners>. ■

County	Estimated number of seasonal residents	Percentage of housing units in seasonal category
Aitkin	31,932	50%
Becker	18,328	24%
Cass	47,232	47%
Crow Wing	47,680	30%
Douglas	14,956	18%
Hubbard	20,584	35%
Otter Tail	38,540	27%
Pope	5,252	20%

Estimated number of seasonal residents by county (Source: 2010 US Census and calculations by University of Minnesota Extension).

Detailed Elevation Data is Available to Everyone

Les Everett and Ann Lewandowski, University of Minnesota Water Resources Center, evere003@umn.edu, alewand@umn.edu



A colored terrain model of the outlet of the Onion River on the North Shore.

Everyone from homeowners to conservationists to private consultants now has free access to the Minnesota high-resolution elevation data collected with LiDAR laser scanning. The Minnesota DNR released MnTOPO (<http://dnr.state.mn.us/maps/mntopo>) in 2014, a web application for viewing, printing and downloading the data.

The high-resolution topographic data - replaces the familiar contour lines on USGS topographic quads. LiDAR (or Light Detection and Ranging) is a method of using lasers mounted on airplanes to scan the elevation of the land and the objects on the land, including trees and buildings.

Maps printed or downloaded from MnTOPO can be used by an individual to understand the shape of a property, or to plan landscaping. Use it with a group to help discuss a water quality concern or a conservation project. Download the data into GIS software for geographic analysis of critical sites or conservation opportunities.

From a computer or mobile device you can view contour lines at two, ten, or fifty foot elevation intervals projected over one of four base maps (roads, aerial images, colored terrain, or black and white terrain images). The user can also obtain an elevation profile for a line drawn on the map. MnTOPO navigation is similar to that of Google Earth, allowing zooming and panning to locate a desired area or point, and has a location search capability. The contour lines appear at increasingly higher resolution (decreasing intervals) when



A peninsula of Gull Lake showing two foot contour lines on an aerial image.

zooming in on an area, and each contour resolution can be turned on or off by the user. Maps can be created, saved and printed.

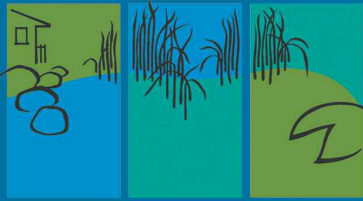
The data can also be downloaded for GIS software directly from MnTOPO. The user draws a polygon around an area on the map and then selects the LiDAR products desired for that area from a list that includes contours, digital elevation models (DEM), hillshade images, and classified point data. The data are then automatically assembled and a link for ftp download is emailed to the user.

The LiDAR data were obtained from light aircraft scanning Earth's surface with laser pulses, one pulse for every 1.5 square meters. Several "returns" (reflections) are obtained for each pulse, corresponding to the altitude of the reflecting surface, like vegetation and bare earth. The data were collected in late fall and early spring, avoiding as much green leaf tissue and snow as possible in order to maximize the bare surface measured. One hundred ground surveyed points per county were used to verify the target vertical accuracy of about seven inches on average. Deviations were most commonly found in areas of very dense vegetation like cattail wetlands. The overall accuracy is an order of magnitude greater than previously available elevation data, except for that from surveyed points and Real Time Kinematic (RTK) technology.

The data are being used in rural areas for many applications, including delineation of field management zones, erosion prediction, siting and pre-design of conservation structures and drainage systems, wetland restoration, flood management, and many others. Since the data are available for the entire state, the applications can take place any time of year. ■

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www.shorelandmanagement.org

A publication of the Water Resources Team, dedicated to educating Minnesota citizens about water resources issues to improve water quality, habitat, and aesthetics of our lakes and rivers.

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To subscribe or unsubscribe, please contact Heidi Olson-Manska at olsonh@umn.edu or 320-589-1711.

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SNAPSHOTS: Water Resources Team Programming and Research – Recent, Past and Upcoming Opportunities

Would Webinars Work? Are you interested in learning more about lakes and rivers and all-things-water in Minnesota? The Water Resources Team is exploring the idea of offering free live webinars. Tell us how webinars would work best for you! Please take our short survey at <http://z.umn.edu/fstswebinars>.

Partnerships The Water Resources Team has been working in southern Minnesota with the Windom Education and Collaborative Center, Windom Chamber of Commerce, and the Heron Lake Watershed District to provide a range of workshops in their area. These workshops are funded in part by a grant from the Toro Corporation and the Minnesota Pollution Control Agency.

So far this year, the team has led two Septic System Homeowner Operation and Maintenance courses and two Linking Land Use and Water Quality (LLWQ) workshops. The LLWQ workshops were designed to help local leaders such as county commissioners and watershed district board members better understand the concepts of water movement through watersheds, how land use impacts our water resources, and practices that can help protect and restore lakes and rivers. Coming up are —

- Shorelines and Clean Water (May 7),
- Let it Rain: Using Rain Gardens and Rain Barrels (May 29), and
- Creating a Rain Garden (May 30).

Upcoming Workshops for Newly Designated MS4 Communities

Members of the Water Resources Team have developed a workshop for communities that recently became eligible for a Municipal Separate Storm Sewer System (MS4) permit by Minnesota Pollution Control Agency Rules.

The workshop is designed to give elected and appointed officials from small cities and townships a stronger understanding of stormwater management and prepare them for future permit application workshops. Workshop attendees will learn the



About 36 local leaders attended the afternoon session of Linking Land Use and Water Quality in Fulda, MN on March 26.

rationale for developing a stormwater management program to protect and enhance water resources, the impacts of land use on stormwater, Best Management Practices (BMPs) that can be employed in a community, and how a community can begin developing a stormwater pollution prevention program (SWPPP) to meet its needs prior to meeting with Minnesota Pollution Control Agency staff.

The first workshop will be held in Mankato on Thursday, June 11, and the second will be held in Elk River on Thursday, June 18. For more information, please contact Doug Malchow at 507-280-5575 or malch002@umn.edu.

Water Resources Educator Attends the Upper Midwest Stream Restoration Symposium

Educator Karen Terry attended the Upper Midwest Stream Restoration Symposium in Dubuque, Iowa in February and presented a poster about the Water Resources Team's Watershed Education Program. The Symposium, hosted annually by the Partnership for River Restoration and Science in the Upper Midwest, is designed to exchange knowledge and lessons learned about important river restoration topics and to create collaborations that will lead to further targeted research. The Technical Program, including links to several of the presentations, can be accessed here: www.prrsum.org/content/technical-program-0. ■