

The Macalester Geography Crow River Watershed Project



A Collaborative Project Between:
Advanced GIS
Cities of the 21st Century
Urban Geography Field Seminar

Talk Overview

- Introduction to the Project
- Brief Overview of the Crow River Watershed
- Project Objectives & Goals
- **Environmental & Physical Components in the Watershed**
 - Critical Land Cover
 - Ethanol Production
 - Polluted Waters
 - *Ashley Nepp, Cities of the 21st Century: Fish Ladders*
- **Social & Economic Components in the Watershed**
 - Poverty and Female Headed Households
 - Free and Reduced Lunches
 - Educational Attainment and Median Household Income
 - *Clare Reuning, Urban Geography: Latino Immigration Patterns*
- Project Challenges
- Other Research
- Closing Remarks

Who's in, What's up?

- Collaboration between three geography classes:
 - *Cities of the Twenty First Century*: a research seminar designed to examine and understand the nature of Urban areas in North America – Dan Trudeau
 - *Urban Geography Field Seminar*: a similar seminar with a strong focus on field research – Dave Lanegran
 - *Advanced GIS*: an upper level GIS course designed to improve foundational GIS skills and engage in project-based work – Holly Barcus, Birgit Muehlenhaus
- We're putting together an atlas of the Crow River Watershed; Advanced GIS will provide maps for visual references to the seminars' research projects
- Atlas as a “reference point”
- Not oriented towards a particular research question



The Crow River Watershed

- **What is a Watershed?**

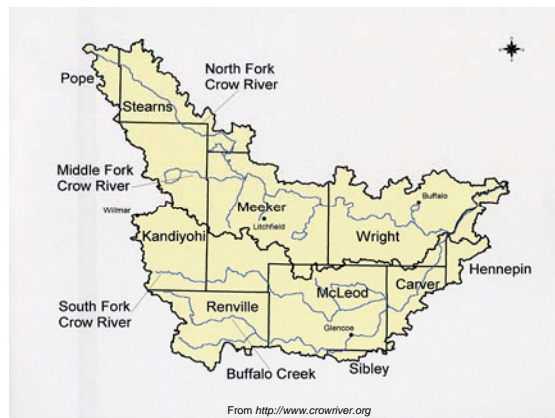
"An extent of land where water from rain or snow melt drains downhill into a body of water, such as a river, lake, dam, estuary, wetland, sea, or ocean. The drainage basin includes both the streams and rivers that convey the water as well as the land surfaces from which water drains into those channels, separated from adjacent basins by a drainage divide."
(Wikipedia)

- The Crow River is made up of three branches:
 - North Fork of the Crow River: about 120 mi (195 km) long
 - Middle Fork of the Crow River: about 50 mi (80 km) long
 - South Fork of the Crow River: about 100 mi (160 km) long
- The Crow River basin is about 2,725 square miles
- The North and South Fork of the Crow River converge in Rockford, MN and flow into the Mississippi river at Dayton, Minnesota.

- **The Crow River Watershed includes:**

Carver, Hennepin, Kandiyohi, McLeod, Meeker, Pope, Renville, Stearns & Sibley Counties

- Watershed covers 1.8 million acres – primarily privately owned
- Primary land use is agricultural



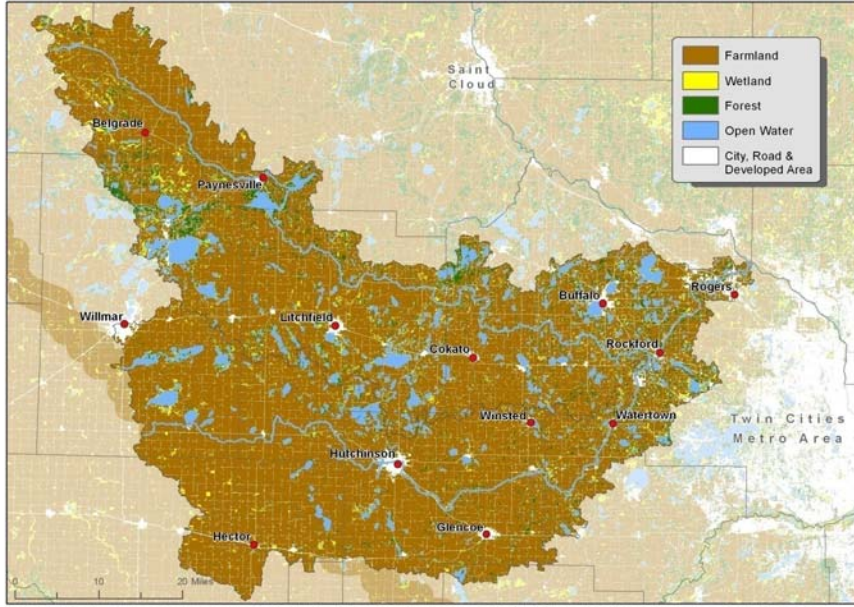
- The watershed district is represented through a consortium of individual citizens and community groups with some stake in the future of the watershed (CROW Joint Powers Board).
- Considering the significant increase in population and development in the Crow River Watershed, this area is both interesting and important to draw attention to.

Goals/Objectives

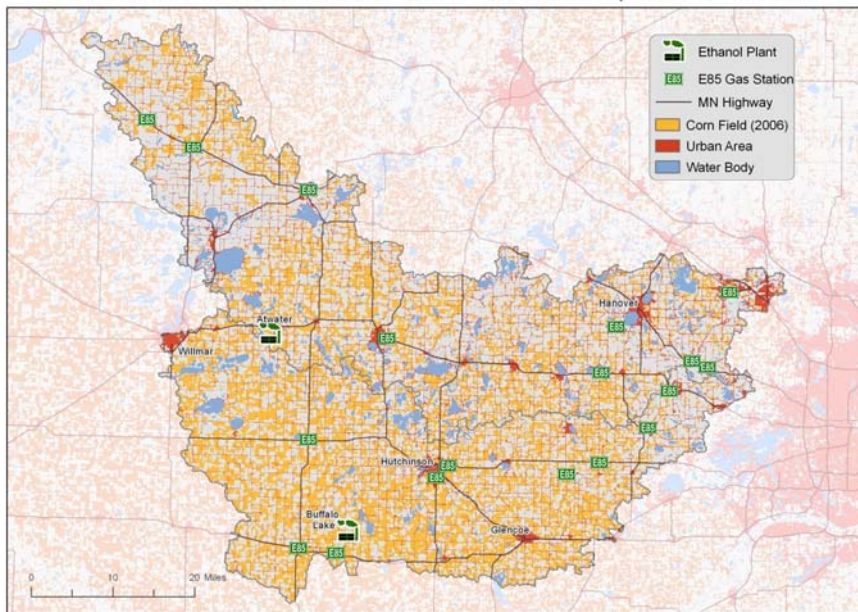
- Allow for Macalester students to engage with a broader Minnesota community, while developing skills in research and GIS
- Identify and analyze the spatial patterns of various environmental and social phenomena confronting the watershed.
- Be able to use a combination of maps, research and theory to create an information base for further research into the issues presented.
- Create a highly-informative, thorough, and useful atlas of the watershed that can be readily accessed and understood by residents of the region, city planners, businesses and academics alike.

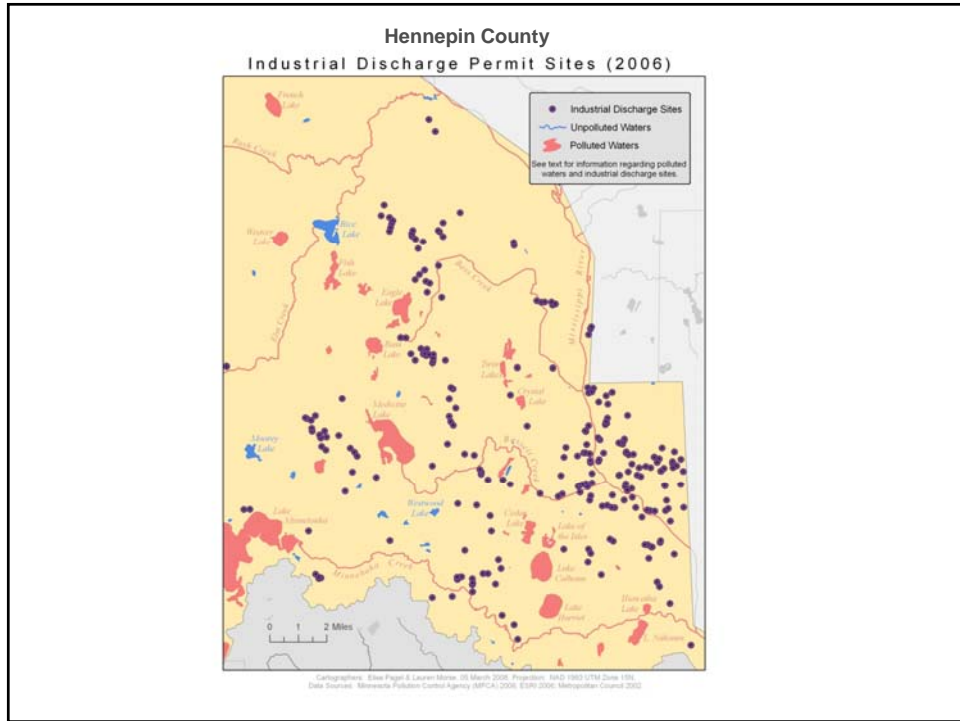
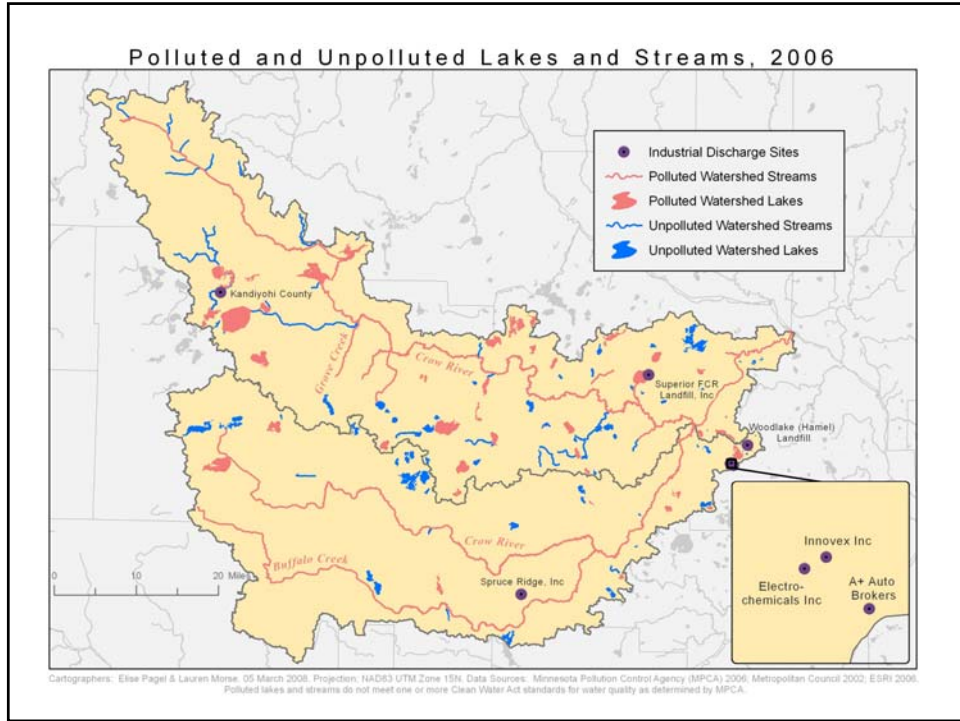
Environmental & Physical Watershed Components

Critical Land Cover in the Crow River Watershed, 2001



Ethanol Production and Consumption, 2006



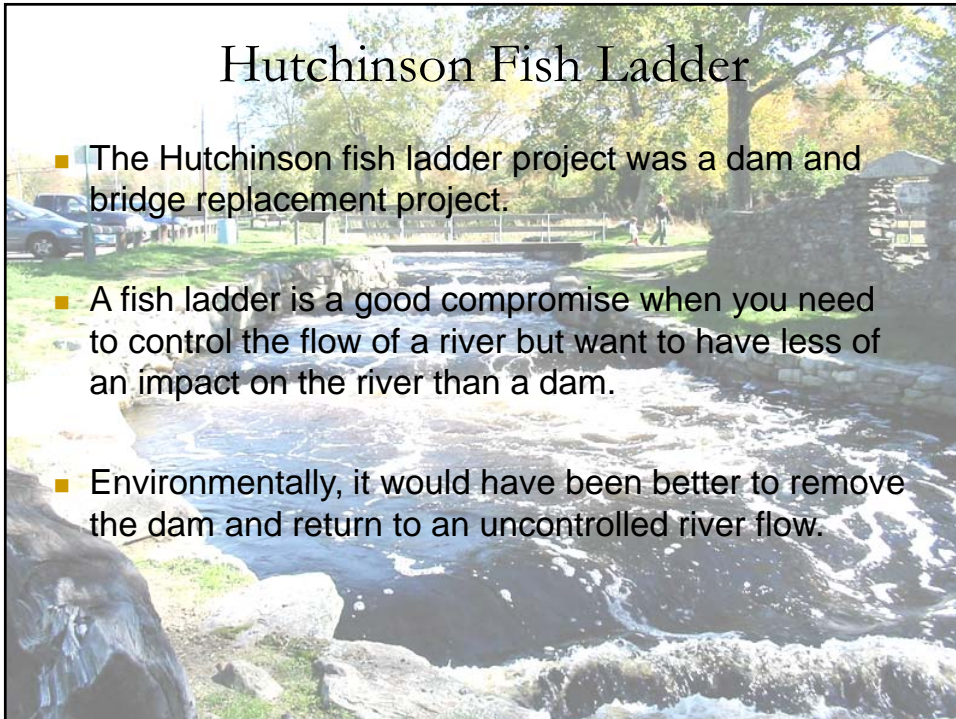


Fish Ladders in the Crow River Watershed

Ashley Nepp
Cities of the 21st Century

Hutchinson Fish Ladder

- The Hutchinson fish ladder project was a dam and bridge replacement project.
- A fish ladder is a good compromise when you need to control the flow of a river but want to have less of an impact on the river than a dam.
- Environmentally, it would have been better to remove the dam and return to an uncontrolled river flow.



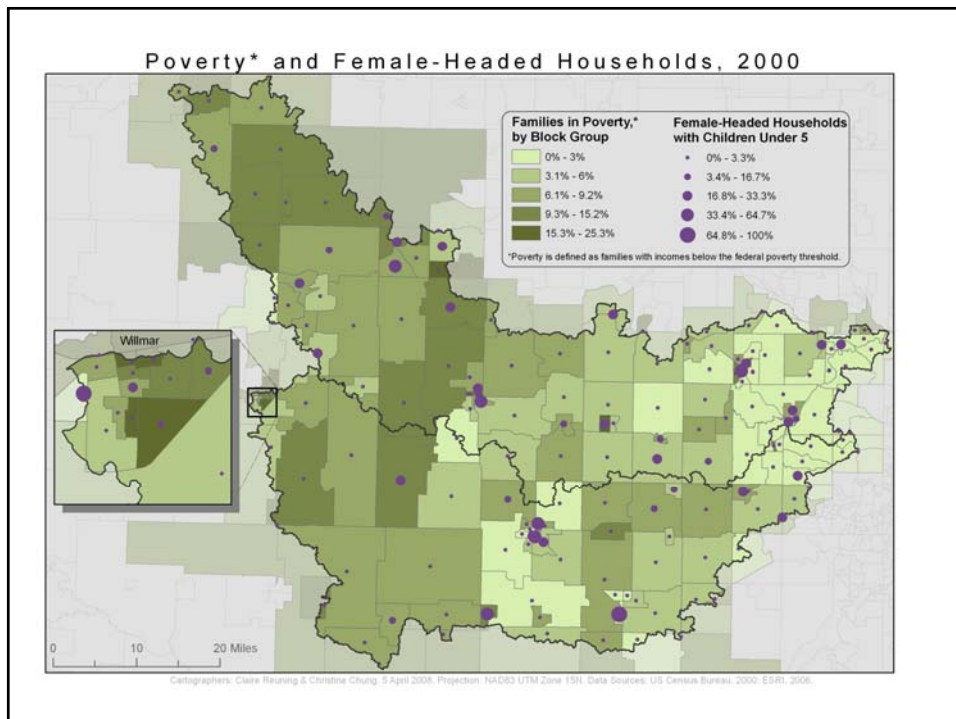


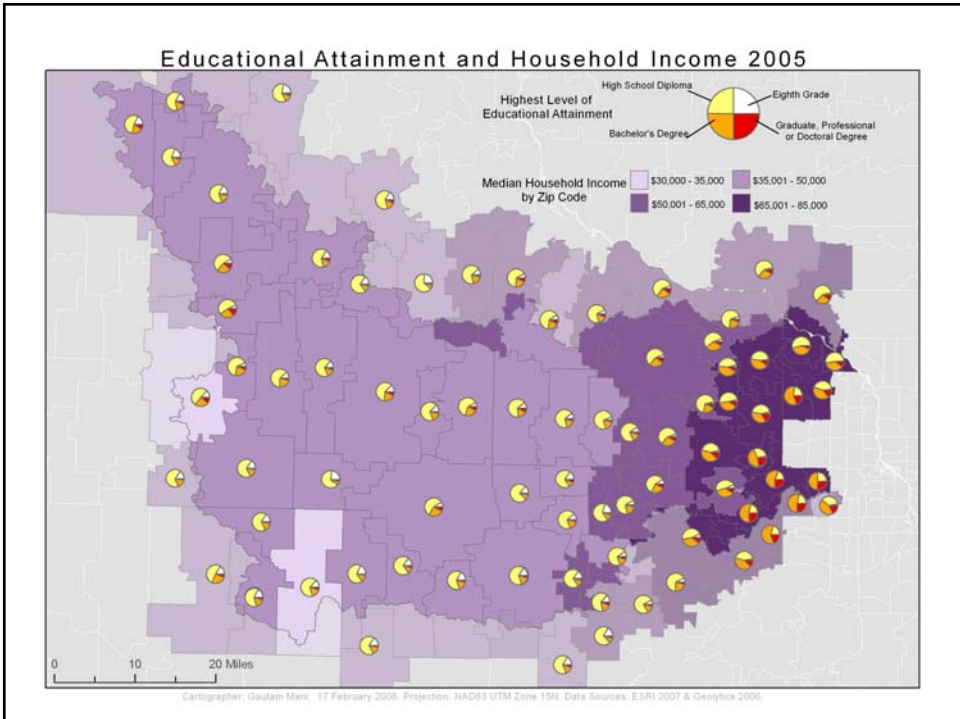
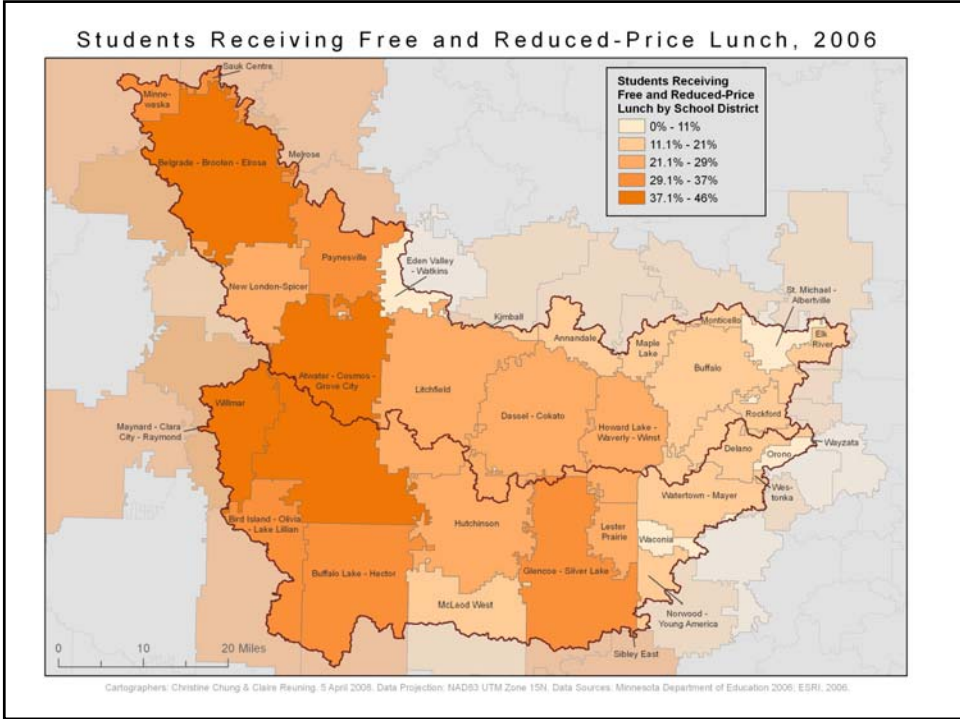
Environmental Benefits:

- Provides a "Run of the river" environment
- Decreases water fluctuations
- Rapids increase downstream oxygen levels
- Allows for fish migration

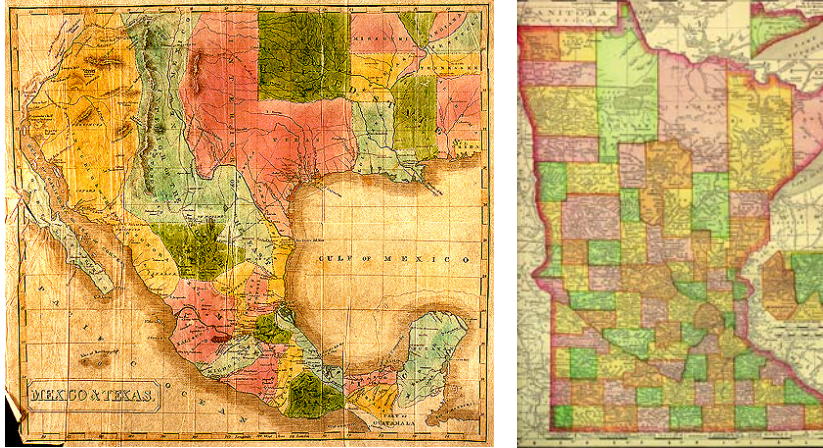


Social & Economic Watershed Components

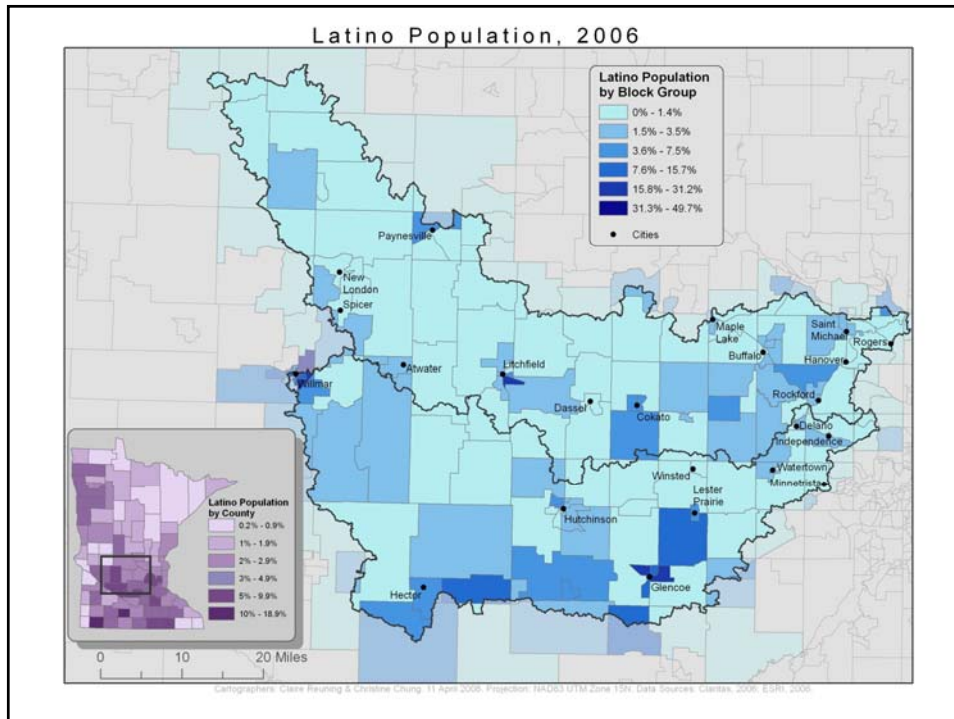


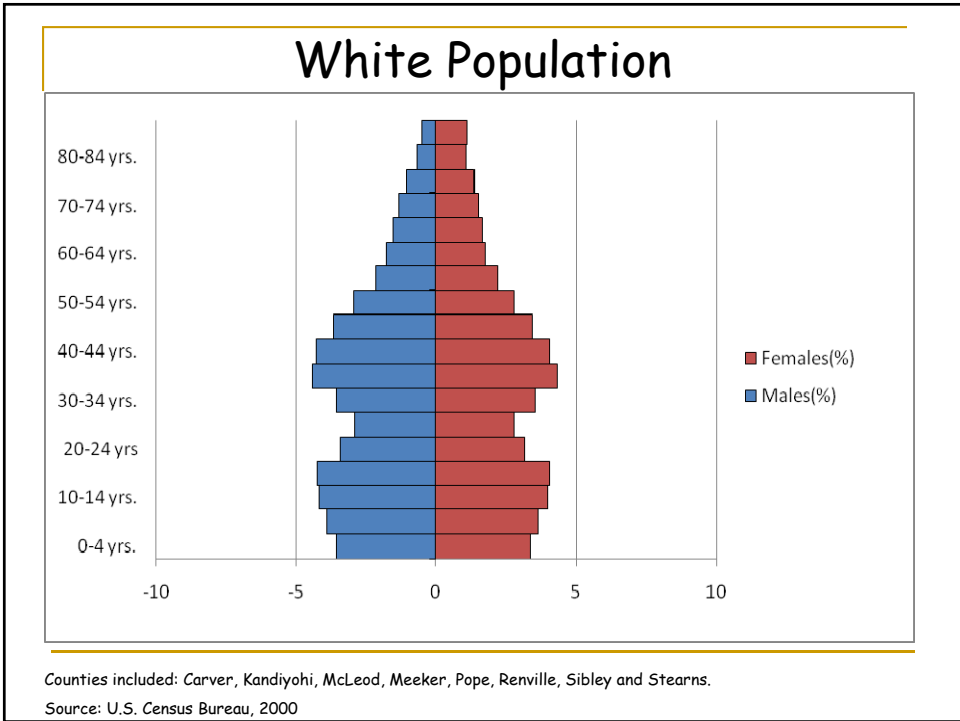
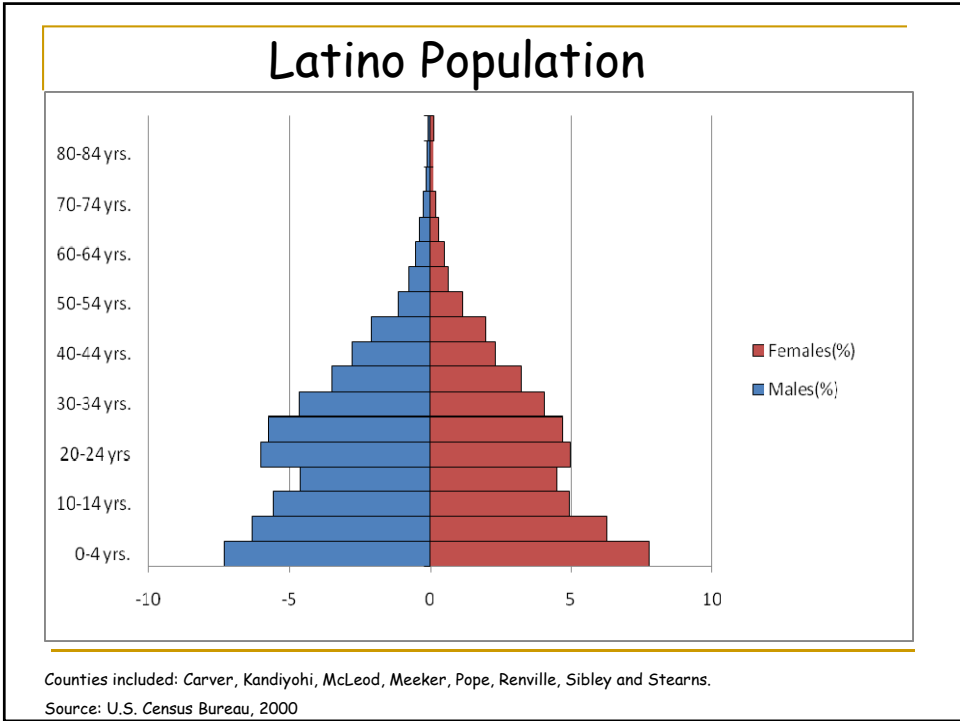


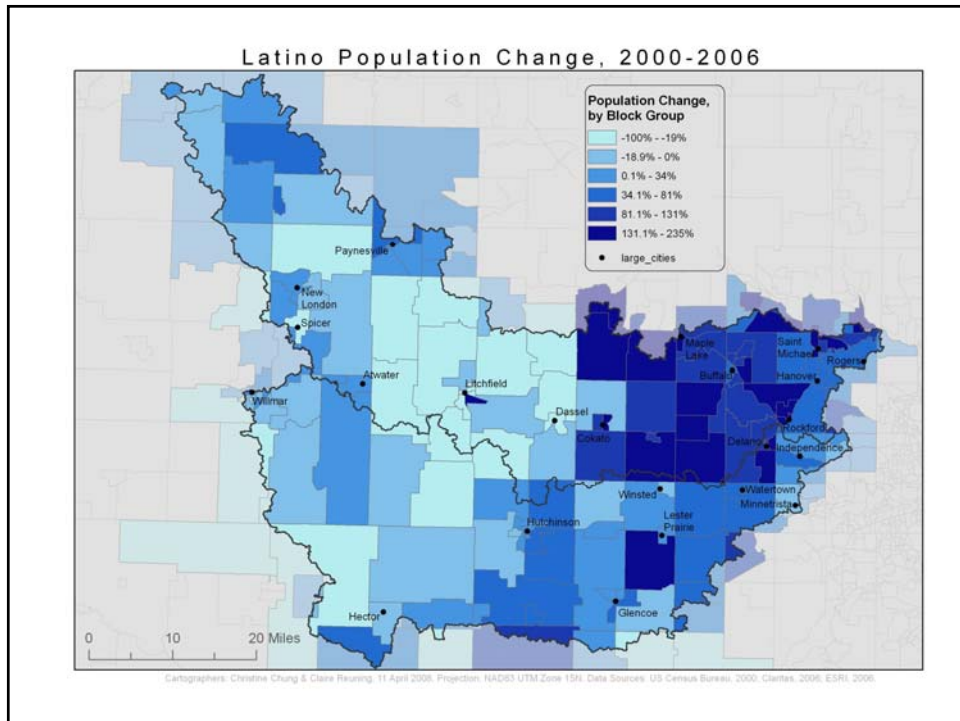
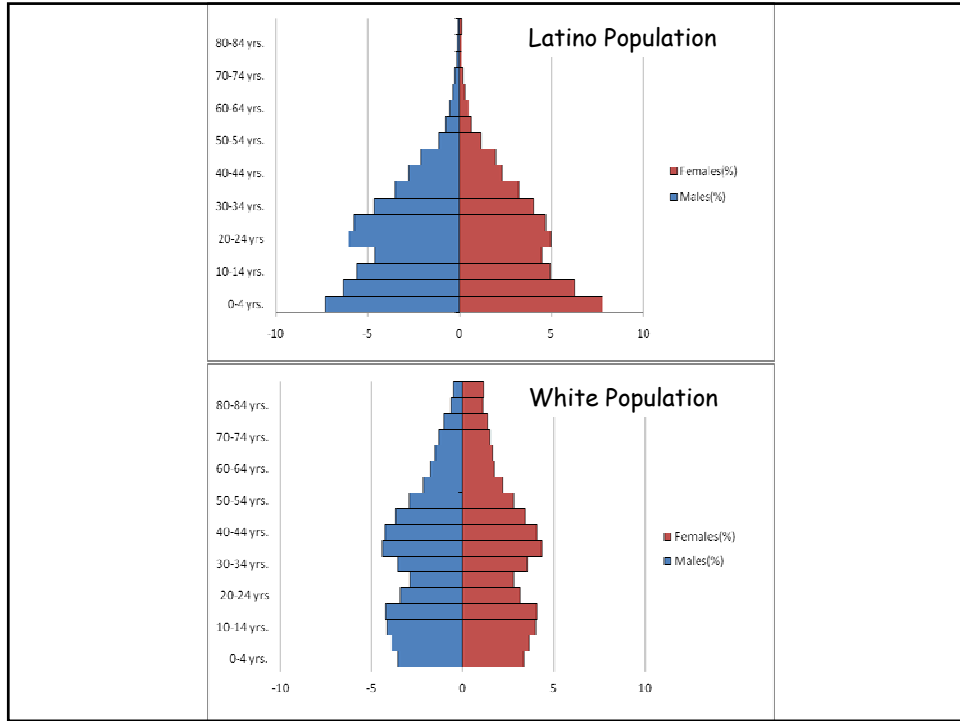
Filling in the Gaps: Latino Migration in the Crow River Watershed



Claire Reuning
GEOG 488
Spring 2008







Project Challenges

- Making maps relevant and accessible to main target audience (watershed residents)
- Difference in setting between the GIS/cartography and field research components of this project
- Issues of scale in determining where data could be obtained
- Understanding the effect that the Twin Cities urban system has on this region, and the data that were obtained
- Inconsistency of time across different projects, depending upon data availability for that particular issue



Cities of the 21st Century Projects

GEOGRAPHY 488-02

- **Competitive Charity: Effects of Healthcare Ownership in Hutchinson, Minnesota** by Emily Gerteis
- **"Selling the Farm": Place marketing in Rural America** by Patricia Bass
- **Make it Happen: Fundamentals of Cooperative Community Development Projects** by Ashley Nepp
- **Turkey Production in Minnesota** by Andrea Blake
- **Governing Water: Management of the Crow River Watershed** by Robyn Schindeldecker
- **Bridging the Gap: An Analysis of the Buffalo, MN Commuter Bus Line** by Joe Parilla
- **Downtown Revitalization of Watertown, MN: Does Size Matter?** by Leah Roth-Howe
- **That's Women's Work: Availability of Child Care and Women's Workforce Participation Rates in the South Crow River Watershed** by Jessica Mowles
- **Diversity and Crow River Schools: Overview of ELL Programs in the Watershed** by Katherine Bristol

Urban Geography Field Seminar Projects

GEOGRAPHY 488-02

- **Commercial Real Estate Development** by Emily Goodman
- **Filling in the Gaps: Latino Migration in the Crow River Watershed** by Claire Reuning
- **Land Use and Water Quality** by Victoria Harris
- **Mental Maps and Spatial Behavior** by Elana Dahlberg
- **Main Street Preservation and Change** by Matt Wicklund
- **Delineating the Suburban Fringe** by Matt Malmberg



Conclusions

- The Crow River Watershed Atlas provides a broad overview as well as highlighting specific topics of the region's natural and socio-economic geography.
- The atlas will serve as a baseline for future research.
- It will be distributed to local and regional planning agencies, such as the Metropolitan Council, and Target Corporation.



Acknowledgments

We would like to thank the *Project Pericles* and the Civic Engagement Center for their generous support.

