AgMag Teacher Guide
Volume 21, Issue 1 2006/2007

Why Ag in the Classroom?

In times past, people were very aware of the role agriculture played in their lives. It meant survival! Nearly everyone—men, women and children—worked the land.

Agriculture still means survival. That will never change. But as time goes on, fewer and fewer people have close contact with farming. They're not aware of their own - and the nation's - total dependence on agriculture. Think about it:

- Only about 2 out of 100 Americans work in production agriculture (farming). This small group meets the food and fiber needs of the nation as well as many people abroad.
- Agriculture, along with its related occupations, is the nation's largest industry. It generates billions of dollars each year; one out of every five jobs depends on it in some way. It has massive impact on the American economy, greatly influences the U.S. international balance of trade and directly affects the number of jobs here at home.

Our citizens must be agriculturally literate in order to make responsible decisions affecting this giant lifeline. Building that literacy in tomorrow's leaders is what Ag in the Classroom is all about.

Academic Standards Connection

The student Minnesota AgMag and other educational materials from Minnesota Agriculture in the Classroom can meet many of the new academic standards. These materials can serve as a wonderful "real life" connection and supporting piece as you incorporate the standards into your classroom activities. Here are a few examples of potential connections:

SOCIAL STUDIES

(History Strand) Standard: The student will demonstrate knowledge of Minnesota's indigenous peoples.

(History Strand) Standard: The student will know and understand the factors that led to rapid settlement of Minnesota in the 19th Century and the changes the new Minnesotans brought with them.

(Geography Strand) Standard: The student will identify and locate geographic features associated with the development of Minnesota.

(Geography Strand) Standard: The student will identify examples of the changing relationships between the patterns of settlement of land use in Minnesota.

(Economics Strand) Standard: The student will understand the concept of interdependence in relation to producers and consumers.

SCIENCE

(History and Nature of Science Strand) Standard: The student will understand how science is used to investigate interactions between people and the natural world.

LANGUAGE ARTS

(Reading and Literature Strand) Standard: The student will use a variety of strategies to expand reading, listening and speaking vocabularies.

Hello Out There (Resources)

MINNESOTA AGRICULTURE IN THE CLASSROOM

Attn: Al Withers, Program Director
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www.mda.state.mn.us/maitc

Visit the National Ag in the Classroom web site to find great educational resources available from other state programs.

www.agclassroom.org

Attention Teachers: Go to **www.mda.state.mn.us/maitc** to find information on the following:

- Food for Thought; A Geography of Minnesota Agriculture mapping curriculum
- Agricultural Children's Literature "Book Bundle" with companion Reader Guides
- Minnesota Agriculture Global Trading Partners
- Project Food, Land and People workshops
- M-AITC Program Funders
- Ag Literacy Grant Program

About your AgMag

Your AgMag is distributed primarily to teachers in grades studying Minnesota (usually fourth or sixth). If the magazine fits better into the curriculum program at another grade level, we encourage you to pass the material on to the appropriate teachers.

Offered at no cost to you, the AgMag is a product of Minnesota Agriculture in the Classroom. You'll receive three issues this school year: mid October, mid December and early March.

This first issue of your AgMag is designed to help you:

- provide students with a general understanding of agriculture and human dependence upon it, today and in the past.
- strengthen understanding of the role agriculture plays in students' daily lives.
- build awareness of Minnesota agriculture, its economic importance and how the state's geographic features influence agriculture.
- offer insights about the connections between agriculture, transportation and Minnesota history.

Integration

Your AgMag materials are created by experienced classroom teachers. An Editorial Review Committee provides content ideas and reviews each issue.

Some teachers use the magazine as a separate lesson; others integrate magazine content into specific areas of the curriculum. The subject matter and skills listed will help you select appropriate agriculture activities to integrate into other curriculum areas.

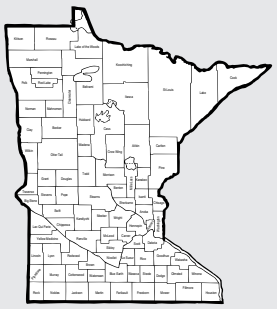
Language Arts, Reading Literacy: Use the articles and activities to develop a variety of skills: outlining; nonfiction reading; reading for the main idea; vocabulary development (bold words, pretest/post-test, activities throughout the AgMag, reproducible pages in Teacher Guide).

Math: Read large numbers and interpret graphs.

Creative Writing: Many of the articles are great launchers for creative writing. Examples: adventures at the fair, tracing family history to agricultural roots, life at Fort Snelling or in an early Indian village.

Geography, Map Skills: See activities pages 4 through 8. Locate the Minnesota communities named throughout the AgMag on a state map. Use the reproducible Minnesota map in the Teacher Guide as a handy aid for a variety of Minnesota concepts.

Try This:



- Color the top-producing counties for various commodities. As a guide for coloring, Commodity Cards can be downloaded and printed for 19 commodities from the Minnesota Agriculture in the Classroom website: **www.mda.state.mn.us/maitc**
- Locate and label major Minnesota cities, major rivers and highways.
- Locate your town or community. Identify counties to the north, south, east and west of your county. Where is your county seat?

History, Social Studies and Current Events: See the cover and the articles and activities on pages 6, 7 and 8.

In This Guide: Don't Miss

- SHOW WHAT YOU KNOW pretest and post-test on page 4. Check your students' knowledge of key agricultural concepts before and after reading the AgMag!
- Discussion prompters, background information, extended activities and answers.
- Two reproducible activities: Waterways to the World, Minnesota Map. See "Try This" in column 1.

Highlights of Your Three 2006-07 Issues Include:

October: **Overview: Agriculture is Everywhere**
- Agricultural production, processing, distribution
- Major Minnesota agriculture crops/growing areas
- Minnesota agribusinesses and cooperatives
- History: American Indian and early Minnesota agriculture; early transportation
- 2006 drought's effect on agriculture
- State Fair fun and facts
- Interdependence of farmers and customers

December: **Overview: From the Land to You; Ag in a Changing World**
- The production/processing/distribution cycle
- Minnesota's poultry industry
- New developments in agriculture
- Global connections
- World hunger and population trends
- History and agriculture: rail transportation

March: **Overview: Agriculture and the Environment**
- The food, land and people connection
- Earth-friendly agriculture
- History and agriculture: highway transportation

Glossary

Some words in your AgMag may be unfamiliar to your students. These words often appear in bold type or in italics. Many are defined in the articles. Words you might wish to pre-teach are: **agriculture, by-products** (cover); **industry, livestock, food, fiber, forests, turf and landscaping materials, production, processing, distribution** (pg 2); **logo, biodiesel** (pg 3); **soil types, terrain, growing season** (pg 4); **commodities** (pg 5).

Discussion Prompters

Cover (Social Studies)

1. Agriculture is everywhere. What is the agriculture connection in each of the photos? (*Most connections are straightforward. The ox cart is less obvious. The cart is made from wood. The ox is a farm animal. The photo represents settlers on the move, many of whom were searching for new lands to develop into farms and ranches.*)
2. Why is it important for all people to know about agriculture? (*We all depend on agriculture for food, clothing and shelter. It's important to understand how our needs are supplied as we make decisions about using land, protecting resources, keeping food safe and much more.*)

Student Pages 2 and 3 (Social Studies, Economics, Science)

1. What have you eaten or worn today that came from an animal? A tree or plant? The soil? Which came from beef or dairy cattle? Hogs? Poultry?
2. Why do we say agriculture depends on natural and renewable resources? (*The things that are produced, processed and distributed all are dependent on soil, sun, air and water in some way. Animals and plants are considered renewable resources.*)

3. After students have tried matching the jobs to Production, Processing and Distribution, discuss some of the careers that are unfamiliar to them. (*A cereal chemist works with edible grains, often to develop new products. A plant biologist studies and works with plants. These people are technologists. Technologists are people who work to use scientific, mechanical or industrial information in ways that meet practical needs.*)
4. Discuss agriculture's customers. Who are they? How do they determine what is produced? (*Customers can include each of us as well as other buyers: processors, distributors, other countries, etc.*)
5. Food production stories and advertising are always in the media. Compile a media journal of ads and articles about Minnesota agribusinesses and cooperatives. What Minnesota products are advertised nationally? What news of "homegrown" corporations or cooperatives can be found on the business pages of the newspaper?

Student Pages 4 and 5 (Geography, Map Skills)

1. What geographical features of Minnesota make it a good state for agriculture? (*Variety of terrain and soil types, climate, rainfall, weather.*)
2. What makes the Red River Valley such a high-producing crop area? (*Rich, fertile soils, adequate moisture, large flat areas for mechanized agriculture.*)
3. Which of the four regions has a main crop that has not always been considered agricultural? Explain your answer. (*The forest region. In the past, natural forests were cut down and not replanted. Today, trees are considered a renewable crop.*)

Student Pages 6 and 7 (Current Events, History, Social Studies)

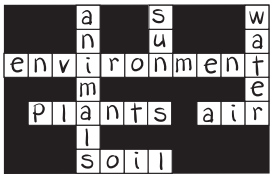
1. Even though fall brought much-needed rain to many parts of Minnesota, heat and drought during the summer growing season harmed many of the state's crops. Most years, Minnesota has had moderate temperatures and enough rainfall at the right times for our crops. The United States is large enough with enough different climates so drought in one part of the country may not affect crops across the whole nation. Still, drought is the major environmental cause of crop loss over the past 50 years. What do some farmers do to help avoid drought damage? *(Some irrigate their crops. Some plant crops or varieties of crops that need less water or are drought resistant.)*
2. Imagine yourself as an early settler traveling to Minnesota territory on foot or by boat. What are some of the hardships your family would face? *(Difficulty traveling once you left the water (heavy forests and tall prairies grasses, etc.) A supply of food. The need for heat and shelter for winter. Primitive medical care. Limited tools, furniture, clothing. Little money, or places to buy things., etc.)* What were some of the hopes that kept you going? *(The chance to earn a living and build a better life for you and your family.)* How are the settlers' dreams like those of immigrants coming into our communities today?
3. Dakota and Ojibwe tribes were greatly affected by arrival of European settlers. Discuss several effects: losing land and communities, wars and conflicts, introductions of new foods, customs, diseases, etc.
4. As your students discuss early Minnesota agriculture, consider enriching the discussion with literature. *Old Rail Fence Corners: Frontier Tales Told by Minnesota Farmers* by Lucy L.W. Morris is a wonderful collection of first-hand stories published by the Minnesota Historical Society.

ANSWERS: AgMag

AGRICULTURE; MORE THAN FARMING, Pg. 2

List labels:
A. *Production*; B. *Processing*; C. *Distribution*
Photos: C ; B; A

Crossword



CELEBRATING MINNESOTA AGRICULTURE, Pg. 3

1. Cargill – corn – corn syrup
2. Hormel – hogs – pepperoni and ham
3. American Crystal Sugar – sugarbeets – sugar
4. John Deere – steel – farm machinery
5. Boise – trees – paper
6. Schwan's – milk – ice cream
7. Land O' Lakes – milk – cheese and butter
8. Old Dutch – potatoes – potato chips
9. Malt-O-Meal – oats – cereal and snacks

MINNESOTA AGBRAGS , Pg. 3

Minnesota's biggest ag customers:
Canada, Japan and Mexico

GROWING AREAS, Pgs. 4 and 5

1. C *(Northwest)*
2. B *(Southwest)*
3. D *(Central/Southeast)*
4. A *(Northeast)*

Leading sugarbeet county: Polk

FIND IT ON THE MAP, Pg. 5

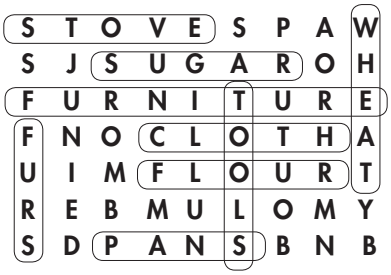
What do you notice about what grows where in Minnesota? Many things grow in clusters in certain areas, but some may grow all over the state. Livestock and the crops that feed them are generally located together. Five things that make growing areas different: soil types, weather, rainfall, terrain, growing season.

Northwest: What's the crop? *wheat*
Northeast: What's the crop? *trees*
Southwest: Name the crop. *soybeans*
Southeast: What's the crop? *beef cattle and apples*

SIZZLING SUMMER, Pg. 6

Home Connection - Cut use of electricy. Use air conditioning only when needed, and set temperature a few degrees higher. Try to cut amount of water used, etc.

TRANSPORTATION CONNECTS AGRICULTURE, PLACES AND PEOPLE, Pg. 7



MINNESOTA TERRITORY, Pg. 8

Boundary Rivers - Red River of the North, St. Croix and Mississippi Rivers.

DID YOU KNOW?, Pg.8

22,000 rolls of toilet paper are used at the fair.

ANSWERS: Teacher Guide

SHOW WHAT YOU KNOW

1. *b* 2. *a* 3. *b* 4. *b* 5. *a* 6. *c* 7. *b* 8. *c* 9. *a*

WATERWAYS TO THE WORLD

Word to help remember the names of the Great Lakes: HOMES.

Note to Teachers:
You are encouraged to send the Pretest and Post-test results to Ag in the Classroom to help document student learning. Use the attached postage-paid evaluation card.

Name _____

Check one ☐ Pretest ☐ Post-test

Show What You Know!

Take this short quiz before you read your AgMag, then again after reading the magazine. See the improvement!

1. Agriculture involves the growing and harvesting of food, fiber, forests and
a. metals. **b.** landscape materials. **c.** plastic.

2. An acre is a land area about the same size as
a. a football field. **b.** a school gym. **c.** a classroom.

3. The same crops grow well all over Minnesota.
a. true **b.** false

4. In agriculture, production means
a. getting farm products from farm to consumer.
b. growing of raw food and fiber.
c. packaging products so they're ready for sale.

5. What percent of Minnesotans work in food and fiber industries?
a. 20 **b.** 10 **c.** 2

6. Many Minnesota crops were affected by what in 2006?
a. floods
b. grasshoppers
c. drought

7. Minnesota's first farmers were
a. Cherokee Indians.
b. Dakota and Ojibwe Indians.
c. Apache Indians.

8. In 2005, Minnesota ranked first of all 50 states in production of
a. soybeans and wheat.
b. ice cream and butter.
c. sugarbeets, sweet corn, green peas and turkeys.

9. Fort Snelling is located
a. where the Mississippi and Minnesota rivers meet.
b. where the Mississippi and St. Croix rivers meet.
c. where the Mississippi and Red River of the North rivers meet.

WATERWAYS TO THE WORLD

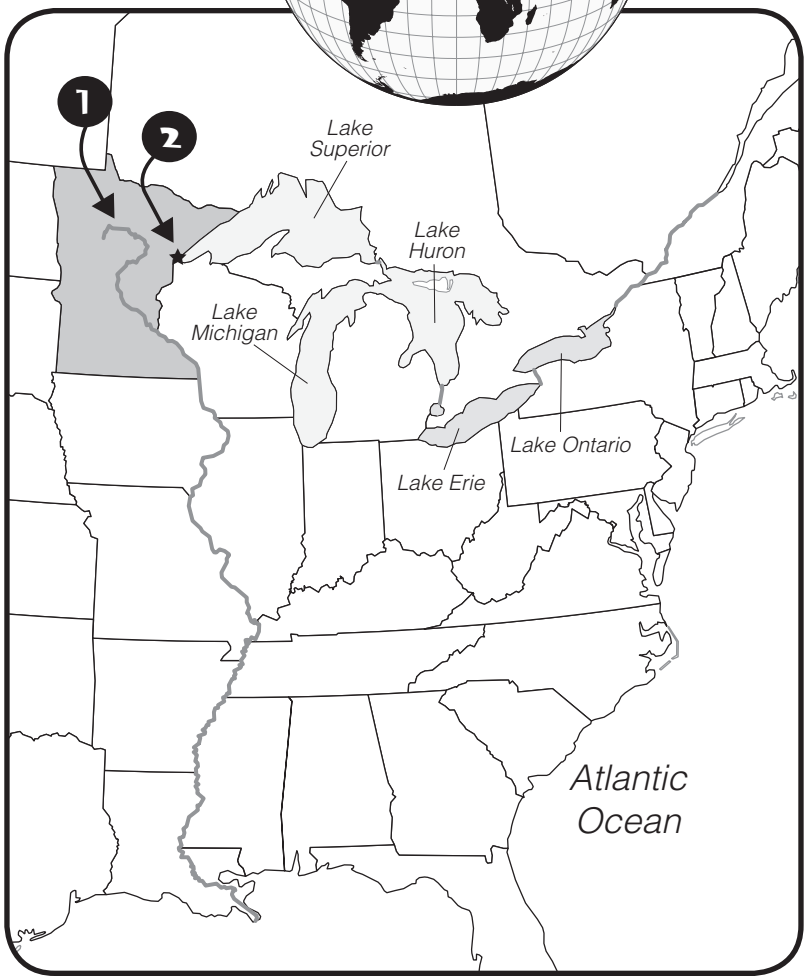
Water travel is not just yesterday's news. It is still important today. Minnesota's geography is full of lakes and rivers. These waterways help move agricultural and other materials into and out of the state.

The Mississippi River and the Great Lakes are the state's two main water routes. They move millions of tons of Minnesota products to markets around the globe.

What are Minnesota's two main waterways to the world?

Write the first letter in the name of each of the five Great Lakes. Unscramble the letters to spell a common word that can help you name the five Great Lakes.

_____ _____ _____ _____ _____



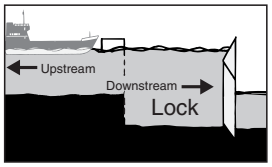
A Water Stairway

The Mississippi is a river highway for boats and barges. This could not happen without a series of 29 locks and dams that make a stairway in the river.

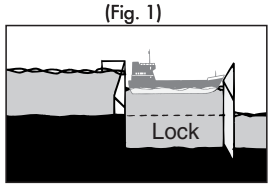
The Mississippi drops over 700 feet between the Twin Cities and the Gulf of Mexico. (This is a drop that would have about 1280 steps.) Like a water stairway, the locks allow boats to move up and down the Mississippi River. Minnesota, Wisconsin, Iowa, Illinois and Missouri have locks and dams. Why do you think no locks are necessary between St. Louis, MO and the Gulf of Mexico?

On the map, shade the states with locks and dams on the Mississippi.

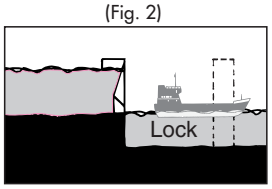
How the locks work



(Fig. 1)



(Fig. 2)



(Fig. 3)

A lock and dam work together. The dam holds back water, creating a pool. The lock is a rectangular water chamber near the dam with watertight gates at each end.

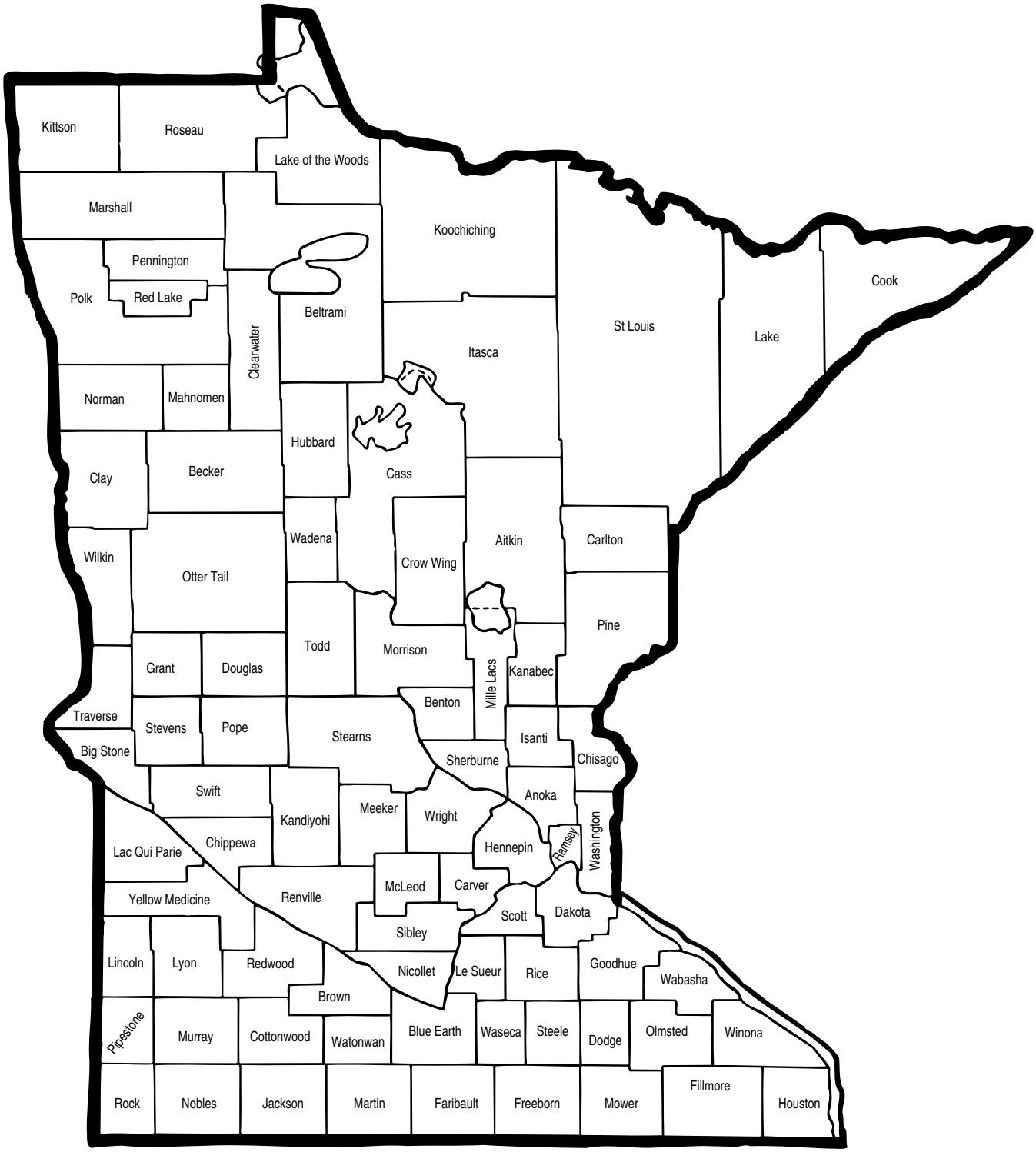
To lower a boat or barge, the lock is filled with water to the upstream level. The barge moves into the lock. The upstream gate closes and water is drained out of the lock, lowering the barge to the downstream level. The downstream gate opens and the barge leaves the lock.

Boats can travel through the locks to go both upriver and downriver on the Mississippi. How?

Duluth Seaway Port Thanks to the Great Lakes and the St. Lawrence River, our landlocked state is linked to the Atlantic Ocean nearly 2,700 miles away. This means coal and iron ore, wheat, barley, corn, soybeans, flour, milk and forest products from Minnesota can ship all over the world. From the Duluth Seaway Port, some cargo goes all the way to the Atlantic Ocean and then to countries everywhere. Other cargo goes to dozens of Great Lakes ports to supply the eastern United States.

i *you know*

- *Duluth Seaway Port receives over 1,000 visits from ships each year.*
- *Most of the ag cargo for outgoing ships gets to Duluth by train or semi trucks.*



MINNESOTA

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