

BREAKFAST October 31, 2017

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ECONOMIC TRENDS IMPACTING THE 15 COUNTY REGION



UNIVERSITY OF MINNESOTA DULUTH Driven to Discover

Alexander Hook

Bureau of Business and Economic Research Labovitz School of Business and Economics, UMD



UNEMPLOYMENT RATES



LABOR FORCE SIZE



Occupation	Jobs in Region 2017	Employment Growth Rates 2012 - 2017	Hourly Earnings (Compared to Nat'l Average) 2017
Health Care	38,000	7%	\$25.39 (\$1.16)
Government (includes education)	37,500	-1%	\$26.93 (\$8.41)
Retail Trade	25,500	2%	\$12.90 (\$3.02)
Professional, Scientific, and Technical	8,500	14%	\$23.96 (\$14.43)
Mining and Oil Extraction	5,000	-16%	\$39.66 (\$0.11)
Water Resources	3,500 © 2017 REIE • National Ba	9%	\$15.18 (\$0.89)

University of Minnesota Duluth

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	© 2017 REIF • National Bank of Comr	merce	Source: EMSI, 2017

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WATER RESOURCE OCCUPATIONS

- Water and Wastewater Treatment Plant and System Operators
- Great Lakes Water Transportation Workers
- Ship and Boat Captains and Operators
- Fishers and Related Fishing Workers
- Sailors and Marine Oilers
- Hydrologists

- Motorboat Operators
- Port and Harbor Operations
- Environmental Science Technicians
- Fish and Game Wardens
- Farming Occupations
- Forestry Occupations



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Source: EMSI, 2017 Base year 2012

Occupation	Jobs in Region 2017	Employment Growth Rates 2012-2017	Hourly Earnings (Compared to Nat'l Avg.) 2017
Water Treatment Plant Workers	350	-1%	\$23.80 (\$1.80)
Conservation Technicians	325	5%	\$18.12 (\$0.44)
Fishing and Related Workers	270	20%	\$12.78 (\$4.03)
Water Transportation Workers	150	7%	\$29.57 (\$0.37)
Hydrologists	10	10%	\$34.84 (\$3.03)

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CONCLUSION

- Unemployment rates have been slowly decreasing
- Labor force continues to decline in the REIF region
- Growth in health care and professional jobs
- Water resource occupations saw growth of 9% since 2012 in the REIF region
- Fishing and water transportation lead growth



Almira Salimgarieva

University of Wisconsin-Superior



• INDEX OF CONSUMER SENTIMENT (ICS)

Consumer outlook on personal finances, business conditions and consumption spending

• INDEX OF CURRENT CONDITIONS (ICC)

Gauges current state of the economy

• INDEX OF CONSUMER EXPECTATIONS (ICE) Projects future economic and financial conditions

PUBLIC SURVEY (RANDOM SAMPLE): 155



Source: UWS Consumer Confidence Survey



© 2017 REIF • National Bank of Commerce University of Wisconsin-Superior Source: UWS Consumer Confidence Survey

Indicator	Public Survey (Random)	REIF Survey (Non-Random)
	Rising optimism about short-term economic outlook	Weakening short-term economic outlook
	Strong current state of the economy	Economy is slowing down
	Expectations of continued economic expansion	Expectations of continued economic expansion

IMPORTANCE OF REGIONAL WATER RESOURCES FOR REIF'S ECONOMY

% of Respondents



NUMBER ONE REASON FOR USING REGIONAL WATER RESOURCES

% of Respondents



Source: UWS Consumer Confidence Survey

SUMMARY OF CONSUMER SURVEY

Consumer Confidence Indicators

Mixed sentiments about current economy among random households and past REIF participants; both groups are optimistic about future economic conditions

Importance of Regional Water Resources High percentage of respondents think that regional water resources are very important for the local economy

Top Two Uses of Regional Water Resources Drinking water & recreation

REGIONAL EQUITY INDEX



Mitchell Blomberg

University of Wisconsin-Superior



EQUITY PERFORMANCE ANALYSIS

STOCKS OF LOCAL INTEREST

- Allete
- Ascena Retail Group
- Calumet
- Canadian National Railway
- Charter Communications
- Cliffs Natural Resources
- Enbridge Energy Partners

- Louisiana-Pacific
- Marriott International
- Morgan Stanley
- Polymet
- UnitedHealth Group
- USG Corporation
- U.S. Steel

GROWTH OF \$100



GROWTH OF \$100



University of Wisconsin Superior

REIF AND MID-CAP CORRELATION

150

58% CORRELATION TO MID-CAP



© 2017 REIF • National Bank of Commerce University of Wisconsin Superior Source: Yahoo Finance

SUMMARY OF FINDINGS

ANALYST OPINIONS

MORNINGSTAR®

- P/E Ratio
 Prices significantly higher than
 industry standards
- Forward Earnings Expected to decrease slightly
- Short Ratio Index average decline to 6.24

VALUELINE[®]

- Performance
 Slightly outperform
- Safety
 Slightly underperform
- Technical Slightly underperform
- Price Stability
 Underperform
- Price Growth Average

ADDITIONAL FINDINGS

OVERALL IMPLICATIONS

- REI vs S&P MID CAP 400 Expected to slightly outperform
- Lack of technological industries in the region limits diversification
- Adding Marriott reflects the same volatility of the REI
- Regression analysis shows more price volatility, but higher returns

BUSINESS CONFIDENCE INDICATORS



C ge

Katherine Grotte

Economics Department The College of St. Scholastica



BUSINESS CONFIDENCE INDICATORS

Fall 2015	108
Spring 2016	109
Fall 2016	108
Spring 2017	107
Fall 2016 Spring 2017	108 107

Fall 2017 108

Number of surveys 105

Source: CSS Business Confidence Survey

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GENERAL BUSINESS CONFIDENCE

Last 6 months Overall Outlook

Next 6 months

Overall Outlook



SPECIFIC CONFIDENCE INDICATORS



FACTORS LIMITING BUSINESS ACTIVITY


FACTORS LIMITING BUSINESS ACTIVITY



FACTORS LIMITING BUSINESS ACTIVITY



FACTORS LIMITING BUSINESS ACTIVITY



INVESTMENT IN ENVIRONMENTAL SUSTAINABILITY

Last 6 months budget



IMPORTANCE OF WATER

 31% said clean water was a reason for their business location

• 71% said their business would see strong negative effects if water quality was compromised

SUMMARY

- 41% of businesses anticipate increased business.
- 23% of businesses plan to increase employment.
- Labor shortage is the biggest factor limiting increased business activity.
- 71% of local businesses are positively affected by our water resources.

SUMMARY OF STUDENT PRESENTATIONS

Water resource occupations saw growth of 9% since 2012 in the REIF region.

Consumers have mixed sentiments about current economic conditions; optimistic about future.

Regional Equity Index (REI) expected to continue to outperform S&P Mid Cap 400.

41% of businesses expect improvement in business conditions over the next 6 months.

71% of local businesses are positively affected by the region's water resources.

TEXT YOUR QUESTIONS at any time during this presentation to

218.721.8318

Water economics



Steve Polasky University of Minnesota Twin Cities & The Natural Capital Project

Multiple ways that water creates value





Drinking water supply



Irrigation





Energy Production



Water is an input into virtually every product...

Product	Gallons of water used in production
Coffee (one cup)	35 gallons
Egg (one)	50 gallons
Corn (one pound)	110 gallons
Cotton (one shirt)	650 gallons
Beef (one pound)	1840 gallons

 Source: https://water.usgs.gov/edu/activitywatercontent.php

Water use in the US (2005)



Source: DOE / Lawrence Livermore National Labs, 2011 (Data from USGS Circular 1344, 2009).



ENTERING Minnesota

Duluth

Multiple ways in which water creates value

- Clean drinking water
- Input for industry and commerce
- Irrigation and agriculture
- Energy production
- Transportation
- Commercial fishing
- Recreation (fishing, boating, swimming)
- Tourism
- Aesthetic value
- Cultural value...



Divergence between market value and value to society



Fiji water US annual sales: \$424 million Sales of top 10 companies: ~\$9 billion www.statista.com/statistics/188312/top-bottled-still-water-brands-in-the-united-states



The value of the view: priceless

Externalities

- Externalities exist when the actions of one agent directly affects the welfare of another agent and is not reflected in market prices
- Inefficient outcomes: misalignment of private with social incentives



Externalities and the prisoner's dilemma

Superior		
Duluth	Clean up emissions	Business-as- usual
Clean up emissions	1,1	-1,2
Business-as- usual	2, -1	0, 0

Public goods

- Public good: a good that is both "non-rival" and "non-excludable"
- Problem of free riding



Public good examples

- Lighthouse
- Clean water
- Clean air
- Global climate
- National defense
- Public radio



Problem of public goods and externalities



- Markets provide incentives for private goods
- Externalities and public goods are examples of market failure
- Little incentive for individual company to spend money to provide clean water



ECOSYSTEMS AND HUMAN WELL-BEING

Synthesis

The Millennium Ecosystem Assessment (2005)

🐞 HILLENNIUM ECOSYSTEN ASSESSMENT

Service	Sub-category	Status	Notes Millennium Ecosystem Assessment
Provisioning Services			
Food	crops		substantial production increase
	livestock		substantial production increase
	capture fisheries	▼	declining production due to overharvest
	aquaculture		substantial production increase
	wild foods	▼	declining production
Fiber	timber	+/-	forest loss in some regions, growth in others
	cotton, hemp, silk	+/-	declining production of some fibers, growth in others
	wood fuel	▼	declining production
Genetic resources		▼	lost through extinction and crop genetic resource loss
Biochemicals, natural medicines, pharmaceuticals		•	lost through extinction, overharvest
Fresh water		•	unsustainable use for drinking, industry, and irrigation; amount of hydro energy unchanged, but dams increase ability to use that energy
Regulating Services			
Air quality regulation		▼	decline in ability of atmosphere to cleanse itself
Climate regulation	global		net source of carbon sequestration since mid-century
	regional and local	▼	preponderance of negative impacts
Water regulation		+/-	varies depending on ecosystem change and location
Erosion regulation		▼	increased soil degradation
Water purification and waste treatment		•	declining water quality
Disease regulation		+/-	varies depending on ecosystem change
Pest regulation		•	natural control degraded through pesticide use
Pollination		▼a	apparent global decline in abundance of pollinators
Natural hazard regulation		•	loss of natural buffers (wetlands, mangroves)
Cultural Services			
Spiritual and religious values		•	rapid decline in sacred groves and species
Aesthetic values		▼	decline in quantity and quality of natural lands
Recreation and ecotourism		+/-	more areas accessible but many degraded

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INSTITUTE ON THE ENVIRONMENT

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natural capital P R O J E C T







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We work to integrate the value nature provides to society into all major decisions. Our ultimate objective is to improve the well-being of all people and nature by motivating greater and more targeted natural capital investments.







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"InVEST" Integrated Valuation of Ecosystem Services and Tradeoffs

http://www.naturalcapitalproject.org





Cost effective land use planning: Optimizing land use and land management patterns to maximize social benefits

Pennington, et al. 2017. Ecological Economics 139: 75-90.

Lake Pepin Photo by Guy Schmickle

Context

Policy context: Lake Pepin TMDL requires 50 to 80% reductions of phosphorus and sediment from current levels

 Estimate benefits and costs associated with alternative ways to improve water quality

Benefits and costs include:

- Changes in agricultural returns
- Changes in the value of non-market ecosystem services



Seven Mile Creek Land Use



Water/wetlands
Roads
Residential/developed
Forest
Hay/Pasture
Row Crops

Model Inputs

National Land Cover
Database (NLCD) 2001 for
data on baseline land use

Table 1. Selected land-management and land-cover types.Land-management practices

and – mixed species

Model outputs

Ecosystem Services:

- Water Quality
- Carbon Sequestration
- Agriculture production and profitability
- Biodiversity Conservation
 - Habitat quality for grassland birds
 - Habitat quality for forest birds


Efficiency frontier

 The goal of the analysis is to find land-use patterns that maximize phosphorus reductions for a given market return to landowners

Frontiers

- -With and without value of ecosystem
- services
 "Current market returns" based on 2007-2011 price and cost data
 "Historic market returns" based on 2002-2006 price and cost data

Efficiency frontiers for sediment and phosphorus reduction



Efficiency frontiers Blue: without value of ecosystem services Red: with value of ecosystem services



Efficiency frontiers:

Solid lines: 2007-2012 prices Dotted lines: 2002-2006 prices



Moving north



Water issues

- Competitive advantage: of abundant clean water
 - Tourism and recreation
 - Water as vital input to industry (pulp and paper, brewing...)
- Sustainable use of water resources:
 - Maintaining clean water (removing pollutants)
- Potential tradeoffs
 - Cost of pollution control
 - Risk



Evaluating tradeoffs: two framings

• All-or-nothing: mining vs. wilderness



New York Times October 15, 2017

- Dominated by emotion and moral indignation my side is right and the other side wrong (or immoral)
- Formula for political conflict

Evaluating tradeoffs: two framings

- Evaluating tradeoffs:
 - Careful consideration of benefits and costs
 - Careful considerations of potential risks
- Where and how should activity take place?



Application to mining

- Benefits of mining:
 - Profit from mining operation
 - Jobs
 - Tax revenue
- Potential environmental costs
 - Water resources: drinking water, recreation, wild rice, aquatic habitat
 - Air quality: emissions mostly from power generation
 - Habitat: wetlands, forests
 - Noise…



Evaluation of benefits, costs, and risks

- Science
 - Evaluating alternatives
 - Understanding links from actions to impacts (if we choose an alternative, what set of consequences follow?)
 - Understanding likelihood of various consequences (risks)
- Science provides the set of facts on which to evaluate alternatives
- Judgement
 - Evaluation of tradeoffs (Does increase in profit/ and jobs justify an increase in risk to water resources?)
 - Understanding distribution of benefits and costs: who wins and who loses?

Getting to decisions that improve outcomes

- Avoid the rush to judgement
- Avoid casting decisions as all-or-nothing
- Science to understand likely consequences of alternative choices
- Deliberation on distribution of benefits, costs, risk across groups in society





RESOURCES

National Bank of Commerce

nbcbanking.com

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PARTICIPATE

To participate in the next round of surveys, please complete the form on your table and drop it off at the registration table as you leave.

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you leave.	Position: Organization/Company: Email:
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SAVE THE DATE

THE NEXT REGIONAL ECONOMIC INDICATORS FORUM

Tuesday, March 27, 2018

Lake Superior Ballroom, DECC

Check your inboxes to provide feedback on today's event or go online at tinyurl.com/REIF2017Fall

