# Great Lakes Port Authorities: Surveying the Past, Looking Toward the Future

Robert Ziegenbein, robert.ziegenbein@detroitk12.org
Warren E. Bow Elementary/Middle School, Detroit, Michigan, 48235

**Target**: Grades 6-8 Computer Lab

**Lesson Overview**

In this lesson, students will become knowledgeable about the thirteen Port Authorities that are located on the Great Lakes. The student groups will choose one particular U.S. or Canadian port authority to research. Using the information and data available, students will learn about the creation and history of the selected port authority. Students will also identify three challenges that the port authority faces for the future. Students to use 1950 as a start point, or the creation of port authority, to research port authority data to determine cargo trends., i.e types of cargo, increase/decrease of tonnage, frequency of sailings and vessel types, up to current year. Students will also be introduced to vocabulary used in Great Lakes shipping. Students will cooperatively work in groups of 2-3 to create a presentation using both PowerPoint and Excel. Students will get practice in web-based research; creation, design, and presentation of report; and complete assignment in a timely manner.

**Objectives**

At the end of this lesson, students will be able to:

Work cooperatively in groups.
Gather, research/analyze port authority data.
Learn the cargoes shipped/received from the various Great Lakes port authorities over time.
Learn the frequency of ship visits to port authorities over time.
Learn and understand new vocabulary as it relates to Great Lakes shipping.
Create and present to fellow classmates a PowerPoint and/or Excel presentation.

**Michigan Content Standards**

## General Knowledge, Processes, and Skills for Grades 5-8 Social Studies

*Embedded in Grades 5- 8 standards and expectations*

## K1 General Knowledge

K1.1 Understand and analyze important temporal, spatial, political, and economic relationships, patterns, and trends.
K1.2 Understand historical, geographical, political, and economic perspectives.

**P1 Reading and Communication** – *read and communicate effectively.*

P1.4 Communicate clearly and coherently in writing, speaking, and visually expressing ideas pertaining to social science topics, acknowledging audience and purpose.

P1.5 Present a coherent thesis when making an argument, support with evidence, and present a concise, clear closing.

**P2 Inquiry, Research, and Analysis** – *critically examine evidence, thoughtfully consider conflicting claims, and carefully weigh facts and hypotheses.*

P2.2 Read and interpret data in tables and graphs.

P2.3 Know how to find and organize information from a variety of sources, analyze, interpret, support interpretations with evidence, critically evaluate, and present the information orally and in writing; report investigation results effectively.

P2.5 Use deductive and inductive problem-solving skills as appropriate to the problem being studied.

## G4.2 Technology Patterns and Networks

*Describe how technology creates patterns and networks that connect people, products, and ideas.*

6 – G4.2.1 List and describe the advantages and disadvantages of different technologies used to move people, products, and ideas throughout the world.

## E3.1 Economic Interdependence

*Describe patterns and networks of economic interdependence, including trade.*

Economic interdependence (trade) and economic development result in challenges and benefits for individuals, producers, and governments.

7 – E3.1.1 Explain the importance of trade (imports and exports) on national economies in the Eastern Hemisphere.

7 – E3.1.2 Diagram or map the movement of a consumer product from where it is manufactured to where it is sold to demonstrate the flow of materials, labor, and capital.

7 – E3.1.3 Determine the impact of trade on a region of the Eastern Hemisphere by graphing and analyzing the gross Domestic Product of the region for the past decade and comparing the data with trend data on the total value of imports and exports over the same period.

## National Educational Technology Standards for Students

**1. Creativity and Innovation** – students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students:

a. apply existing knowledge to generate new ideas, products, or processes.

b. create original works as a means of personal or group expression.

**2. Communication and Collaboration** – students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others. Students:

a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.

b. communicate information and ideas effectively to multiple audiences using a variety of media and formats.

**3. Research and Information Fluency** – students apply digital tools to gather, evaluate, and use

information. Students:
a. plan strategies to guide inquiry.
b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
c. evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
d. process data and report results.
**4. Critical Thinking, Problem Solving, and Decision Making** – students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students:
b. plan and manage activities to develop a solution or complete a project.
**5. Digital Citizenship** – students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior. Students:
b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.

**Materials Needed**
laminated Great Lakes map #14500 Lake Champlain to Lake of the Woods, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Washington, D.C. May 2009.
computer lab with internet access; PowerPoint and Excel programs; white board; and multimedia projector; student netbooks
2013 Know Your Ships iBook and standard book
internet sites – see resources for listings

**New Vocabulary**
This is only a partial listing of words and definitions referenced from **ABC's of the Seaway** online at http://www.greatlakes-seaway.com listed under Seaway Publications.

Cargo – the items a ship carries for transport from one port to another. General cargo is usually standardized 20ft or 40ft-long metal containers. Bulk cargo is usually granular and lose, examples include grains, iron ore, coal, and taconite pellets.

Laker – a ship found exclusively on the Great Lakes.

Port Authority – is a governmental or quasi-governmental public authority formed to operate ports and other transportation infrastructure in the United States and Canada.

Port – a city with a harbor where ships load or unload cargo.

Saltie – a ship on the ocean.

**Attention Getter/Focus Question**

Class is viewing a map of the Great Lakes region. Use a dry-erase marker to highlight the cities listed.
Duluth-Superior, Minnesota; Green Bay, Wisconsin; Milwaukee, Wisconsin; Chicago, Illinois; Chicago, Illinois; Detroit, Michigan; Toledo Ohio; Cleveland-Cuyahoga, Ohio; Thunder Bay, Ontario; Goderich, Ontario; Oshawa, Ontario; Windsor, Ontario; Hamilton, Ontario; Toronto, Ontario. All of these cities have several things in common. Can you think of two things that they all have in common?
Answer: All these cities are located on one of the Great Lakes and each one has a Port Authority.

Can you think of a reason why there is a need for a Port Authority? Accept any reasonable answer, with particular focus on collecting data on ships cargoes and ports of call.

**Computer Lab Activities**

Session One
Students will learn new vocabulary as it relates to the GL / SLSS. Students will view and discuss together Tommy Trent's ABC's of the Seaway.

Session Two
Students will learn the general purpose behind the creation of port authorities, see "Seaports Deliver Prosperity". Additionally, students will brainstorm about the types of cargo that are shipped on the Great Lakes. Students will take notes as necessary.

Session Three
Student groups will pick the port authority that they will study. The teacher will also receive a list of the port authorities being studied. Students will go to port authority website and mark this as a favorite site for future use.

Session Four
Students will begin creating their PowerPoint presentation by searching for the reasons the port authority was created and highlighting any interesting history of the port authority.

Session Five
Students will continue working on the port authority background information.

Session Six
Students will search the port authorities data to find information regarding the types of cargoes shipped and received. They will record data from decade years 1950, 1960, 1970, etc. to present. There may be cases where the data doesn't exist, in this case the students will confer with the

teacher and adjust their reporting timeframes. The data is to be captures in Excel and presented as both a data table and a graph. Students will decide type of graph that works best.

Session Seven
Students will continue searching port authority data to find information regarding ship visits. The above-listed criteria applies to this research.

Session Eight
Students will finish gathering and recording data as it relates to Sessions Six and Seven. Students will note trends/patterns discovered in their PowerPoint presentation. Students will be informed that port authorities face challenges; students are to research and list the top three challenges.

Session Nine
Students will continue researching the challenges port authorities face and incorporate this information into their presentation.

Session Ten
Students will gather two snapshots to be used in presentations. The first shows the general location on the Great Lakes. The second shows a detailed picture of the port authorities' layout.

Session Eleven
Students will make any corrections to their data and presentation.

Session Twelve
Students will begin their PowerPoint / Excel presentations.

**Assessment**

Student groups will create a PowerPoint and/or Excel presentation that will: discuss the reasons behind the port authorities' creation and interesting history to date (i.e. busiest port, port that can handle the most ships at a time, etc.); data and trends will be presented in table and graph format to show cargo shipped and received since 1950 or port authority creation (i.e. types and volumes of cargo (limestone, wheat, taconite, etc.)); number of ships calling at port authority. Port authority future concerns need to be listed. Students will also need to include photo of the location and layout of the port authority.

**Resources**

AAPA – American Association of Port Authorities, http://www.aapa-ports.org Web. 19 August 2013.

AAPA – American Association of Port Authorities, "Seaports Deliver Prosperity," http://www.aapa.files.cms-plus.com Web. 19 August 2013.

Chicago (Illinois) Port Authority, http://www.iipd.com Web. 17 August 2013.

Cleveland-Cuyahoga (Ohio) Port Authority, http://portofcleveland.com Web. 17 August 2013.

Detroit (Michigan) Port Authority, http://www.portdetroit.com Web. 17 August 2013.

Duluth (Minnesota) Port Authority, http://www.duluthport.com Web. 17 August 2013.

Goderich (Ontario) Port Authority, http://www.goderichport.ca Web. 16 August 2013.

Great Lakes & Seaway Shipping Online, Inc., http://www.boatnerd.com Web. 16 August 2013.

Green Bay (Wisconsin) Port Authority, http://www.portofgreenbay.com Web. 16 August 2013.

Hamilton (Ontario) Port Authority, http://www.hamiltonport.ca Web. 16 August 2013.

Milwaukee (Wisconsin) Port Authority, http://city.milwaukee.gov/port Web. 17 August 2013.

Oshawa (Ontario) Port Authority, http://portofoshawa.ca Web. 16 August 2013.

Thunder Bay (Ontario) Port Authority, http://www.portofthunderbay.com Web. 16 August 2013.

Toledo-Lucas County (Ohio) Port Authority, http://www.toledoportauthority.com Web. 17 August 2013.

Toronto (Ontario) Port Authority, http://www.torontoport.com Web. 16 August 2013.

Norm Tufford (1990), **Tommy Trent's ABC's of the Seaway,** The St. Lawrence Seaway Management Corporation.

Windsor (Ontario) Port Authority, http://www.portwindsor.com Web. 16 August 2013.

The Great Lakes are an important water system of North America for transportation, commerce, and recreation; they lie mostly on the border between the United States of America and Canada. The size is difficult to appreciate until you see them: at 94,250 square miles (244,100 km2) combined, the lakes are nearly as large as the United Kingdom, and there are places where a plane flying over one will not see land. Taken collectively, they are the second-largest reserve of fresh water by volume outside the Abstract The Great Lakes Maritime Research Institute was established to pursue research efforts in marine transportation, logistics, economics, engineering, environmental planning, and port management.Â  During the past year, two additional universities joined the list of affiliate universities, The University of Findlay (Ohio) and Rochester Institute of Technology (New York).Â  Great Lakes Maritime Academy Admiral John Tanner 1701 East Front Street Traverse City, MI Michigan Technological University Dr. William Sproule Dept. of Civil and Environmental Engineering 1400 Townsend Drive Houghton, MI University of Michigan Dr. Armin Troesch Dept. of Naval Architecture and Marine Engineering 2600 Draper Ann Arbor, MI. The Great Lakes, also called the Great Lakes of North America, are a series of large interconnected freshwater lakes in the upper mid-east region of North America that connect to the Atlantic Ocean through the Saint Lawrence River. In general, they are on or near the Canadaâ€“United States border. They are lakes Superior, Michigan, Huron, Erie, and Ontario. Hydrologically, there are only four lakes, because lakes Michigan and Huron join at the Straits of Mackinac. The Great Lakes Waterway enables travel