



# Great Lakes Maritime Research Institute

A University of Wisconsin - Superior and University of Minnesota Duluth Consortium

## Quarterly Update

(July - September 2012)

Co-Directors:  
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### October 2012

#### K-12 Teachers Learn about Great Lakes Shipping

The 2012 Great Lakes Maritime Transportation Teachers' Institute was held in the Upper Peninsula of Michigan. Nineteen teachers from Michigan participated in a traveling maritime transportation teacher institute in July that visited the port cities of Marquette, Sault Ste. Marie, and Manistique. Teachers met with a wide variety of experts throughout the week including Chief Engineer for the U.S. Army Corps of Engineers at the Soo Locks, the Vessel Traffic Service Command Center at the U.S. Coast Guard station in Sault Ste. Marie, and Fred Stonehouse, Vice-Chair of Michigan Ports Collaborative and Marquette City Commissioner and maritime history author. Teachers toured the Cliff's Natural Resources iron ore mines, processing facility and ore dock in Negaunee & Marquette, and the Carmeuse Lime & Stone Quarry in Port Inland, as well as the Whitefish Point Lighthouse & Shipwreck Museum, to examine important maritime issues and challenges. Captain Rick Brown, licensed captain and instructor at The Maritime Academy of Toledo, presented lessons on maritime history, navigation & mapping, weather, and maritime careers. The program was coordinated by Joan Chadde, Michigan Technological University, with funding from the University of Wisconsin CFIRE program and the Great Lakes Maritime Research Institute. Ms. Carol Wolosz, the GLMRI Executive Director assisted with the workshop.



As part of the workshop, teachers prepare lessons to incorporate their newfound knowledge into their classes. **The lesson plans are linked for public access at [www.glmri.org/resources/](http://www.glmri.org/resources/).**

#### GLMRI Research Team Meets with Norwegian LNG Shipping Experts

The GLMRI project team traveled to Norway during the week of August 12-18 to meet with governmental agencies, shipyards and engine manufacturers/others to provide an in-depth exchange of maritime applications that are on-going in coastal Norway. Dr. Michael Parsons coordinated the detailed planning and organization for the trip to observe the LNG fuel use in non-LNG cargo vessels. Other team members included technical consultants Richard W. Harkins and Patrick J. O'Hern, Ms. Carol Wolosz, Executive Director of GLMRI, and GLMRI regulatory consultant Randolph Helland. The team's visit

included: a presentation, factory tour and discussions of Bergen Rolls-Royce LNG gas engines; propulsion plant tour of Fjord1's ferry *M/V Raunefjord*



with single-fuel Rolls-Royce LNG engines, Halhjem-Sandvikvag run south of Bergen; observation of tank truck to land-based storage tank transfer and also the bunkering of LNG at the Halhjem terminal to the *M/V Raunefjord*; meeting with the Norwegian Maritime Directorate for discussion of regulations and national programs, Haugesund; visit to the Kleven Verft shipyard for discussions and tour of propulsion plant of Eidesvik's nearly completed Platform Supply Vessel *M/V Viking Princess* with dual-fuel LNG/MDO Wärtsilä gas engines Ulsteinvik; a visit to Fiskerstrand Verft shipyard, builder of the *M/V Boknajok*, Fjord1's most recent LNG ferry, south of Alesund; and a meeting with Det Norske Veritas for discussion of classification requirements, programs and initiatives involving LNG fuel use, Hovik.

The overwhelming reaction to the visit was that while the use of LNG fuel involves new, higher technology and additional safety considerations, the use of LNG as a marine fuel for non-LNG cargo vessels is now routine practice in Norway after its introduction on the ferry *M/V Glutra* 12 years ago.

## GLMRI Annual Meetings Held In September

The Annual GLMRI Advisory Board meeting and the Affiliates meeting were held in Duluth, MN on 27-28 September. The research presentations were divided to cover the updates on the Liquefied Natural Gas projects on Thursday afternoon. Dr. Michael Parsons/University of Michigan provided an update on the steamship study. He also led the panel discussion on the outcomes from the Norway LNG trip. Mr. Joseph Fischer and Ms. Ziyang Zhan from Bay Engineering, Inc. presented their engineering analysis on converting the S.S. *Badger* from coal to natural gas. Capt. Randolph Helland, USCG, retired, presented an overview of his research in addressing the regulatory issues from federal, state and local authorities that will impact the utilization of LNG as a marine fuel. The team of Drs. James Winebrake/Rochester Institute of Technology and James Corbett/University of Delaware with Ms. Heather Thomson modeled a comparative analysis of the S.S. *Badger* emissions profile utilizing various fuels options.

On Friday morning, presentations included the work that Dr. Donn Branstrator/UMD and Matt TenEyeck/UW-S are doing in conjunction with the Great Ships Initiative ballast water treatment testing in researching the propagation of invasive species. Also, Dr. Branstrator presented his initial findings on sampling of ballast tank sediment. Dr. Tom Brady/Purdue North Central presented a final report on his study on barging truck trailers across Lake Michigan. Dr. Zamira Simkins/UW-S presented an economic analysis of the value of cargoes being shipped on the Lakes. Dr. Nathan Johnson/UMD provided his results in combining dredged material with bio-solids from the Western Lake Superior Sanitation District. Dr. Peter Lindquist/University of Toledo gave a brief summary on the current updates on the Great Lakes Maritime Information Clearing House. Presentations are available at: <http://www.glmri.org/news/presentations12>

Affiliate university representatives provided updates on their programs: Dr. Teresa Adams/UW-Madison, Admiral Jerry Achenbach/Great Lakes Maritime Academy, and Dr. Brad Hull/John Carroll University.

The meetings were attended by U.S. Department of Transportation/Maritime Administration and the St. Lawrence Seaway Development Corporation representatives, members from the Lake Carriers Association and Great Lakes Shipping industry, port representatives, USCG, US Army Corps of Engineers and the Society of Naval Architects and Marine Engineers.

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## Key Outreach, Events, Presentation, Meetings

- Great Lakes Maritime Workshop for K-12 Teachers. Upper Peninsula, MI. 16-20 July.
- Mr. Helland traveled with the S.S. *Badger*, met with the fire department captains in Ludington, Michigan and Manitowoc, Wisconsin. Met with the USCG Sector Lake Michigan personnel. 16-18 July.
- Dr. Branstrator and Ms. Wolosz held a telecom/program review with the Lake Carriers Association President and members to discuss the progress of the sediment study. 24 July.
- Dr. Stewart toured the U.S. Coast Guard Cutter *Mobile Bay*, in Sturgeon Bay, WI. 4 August.
- GLMRI team toured the Norwegian Shipping Industry and LNG applications. 11-18 August.
- Ms. Wolosz attended the Duluth/Superior Harbor Technical Advisory Committee Meeting. Superior, WI. 5 September.
- Dr. Stewart participated at the Mid-Continent Freight Conference. Madison, WI. 6-7 September.
- GLMRI sponsorship with Affiliate John Carroll University, The Netherlands: Gateway to the Great Lakes Conference. The conference brought the United States, Canada and the Netherlands together to work towards a more globally connected commercial world with over 150 participants. Cleveland, OH. 9-10 September.
- Ms. Wolosz moderated a panel with Ms. Libby Ogard, Prime Focus, LLC and Ms. Sarah Shafer from University of Toledo on the results of the NCFRP-35 Study, "The Multimodal Freight Transportation System within the Great Lakes-Saint Lawrence Basin". Sandusky, OH. 13-14 September.
- Annual GLMRI meetings. Duluth, MN. 26-28 September.
- Dr. Stewart presented at the Council on Supply Chain Management Association. Atlanta, GA. 29-30 September.

## New Researcher On-Board

University of Wisconsin-Superior hired a new faculty member with a strong background in shipping and maritime commerce. **Dr. Amit Mokashi** joined the Transportation and Logistics Dept. and will be working on the maritime research areas. Dr. Mokashi holds a Chief Engineer License (unlimited), Steam and Motor Ships, with the Maritime and Coastguard Agency, UK.



## Project Report Completed with USCG and DSPA

GLMRI completed the report for the Maritime System Transportation Recovery Plan Analysis over the summer. The GLMRI project team worked closely with the Duluth Seaway Port Authority (DSPA), the Duluth Marine Safety Office, US Coast Guard (USCG) and the Minnesota State Department of Public Safety, Homeland Security and Emergency Management. The GLMRI team is greatly appreciative of having the opportunity to work with the agencies along with the port and maritime affiliated businesses in Duluth and Superior.

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