A Review of Great Lakes Shipbuilding and Repair Capability: Past, Present and Future

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Goal: To develop a database of ship repair and shipbuilding capabilities in the Great Lakes by identifying the location, layout, and capabilities of past, present and potential facilities. Additionally technical-socio-economic impacts of a viable ship repair and shipbuilding are presented.
Great Lakes Shipbuilding History

- 17th century
  - First sailing vessels on Lake Ontario
  - Controlled by British Navy
- 1800’s
  - Schooners became predominate ship both merchant and military
  - Replaced by steamers end of century
- World War II
  - 313 combatant and 14 auxiliary ships made
- Post War
  - By late 1960 most GL shipyards closed
Active US Yards Repair, Shipbuilding, and Luxury

Detail facility information presented in final report
Factors on GL Shipbuilding

• Saint Lawrence Seaway
• Labor Considerations
• Facility and Environmental Considerations
• Cost of Production Considerations
• Return on Capital
Saint Lawrence Seaways

- Max vessel size
  - 225.5 m length
  - 23.7 m width
  - 8.08 m draft
  - 35.5 m above WL
- Seaway closing
  - Winter closure December to March
- Size limitations, winter closure, and Canadian / US policy impact feasibility of international cargo short sea shipping
Labor

- Midwest
  - Blue collar labor rate $2 - $3 more than Gulf
  - White collar labor rate $2 - $5 more than Gulf
  - Cost of living similar to Gulf
  - Add labor during winter repair season.

- Gulf Cost
  - Strong federal and state support of shipbuilding workforce education
  - Day labor practices acceptable
  - Foreign labor acceptable

- National shortage of skilled trades and skilled engineers
Facilities

• Weather
  – Due to weather associated with GL region, covered protected building facilities required
    • Flux core welding vs. MIG
    • Weld quality
    • Robotics use

• Facilities funding
  – US Navy helps military shipyards improve (NSRP)
    • Gulf coast yards and the big 6 have benefited
    • No GL yards are members of NSRP
  – Plus-ups funds
    • Gulf coast has benefited
  – Local Funding
    • Local funding occurs but success is questionable
  – Private investors
    • Mainly luxury market or expansion of current businesses
Cost of Production

• National shipbuilding trends
  – Producer Price Index
    • Ship and Boat Building 18.87% change between 2001 and 2006
    • Ship Building and Repairing 21.27% change between 2001 and 2006
    • Military
      – Annual growth rate of over 10% from 1950 - 2000
Return on Capital

• Shipbuilding is easy entry market if:
  – Low complexity products produced
  – Low labor rate
  – Protected market drives cost

• Shipbuilding not easy entry market if:
  – Capital equipment is needed to apply advance manufacturing methods
  – High skill employees needed for complex product types

• Question: If one were to invest 50 million dollars in a business would shipbuilding be it?
Market Opportunities

• Short Sea Shipping
  – International Cargo
    • Studies have concluded that SSS is not feasible due to winter navigation, cost compared to rail, government restrictions, and marginal financial return
    • Studies have not looked at protected market ships and routes
      – Jones act or Canadian vessels
      – Non-standard unique ship type
    • Studies assume cargo would find alternate route in winter
    • Studies have not suggested that SSS be abandoned instead
      – Focus on border and traffic congestion
      – Intercostals opportunities between Atlantic Canadian or US coast and the GL region
  – Domestic Cargo
    • Possible if assumptions are realized

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SSS impact on Shipbuilding

- Given current capacities long term work volume must increase to justify an increased Shipbuilding base
- SSS could provide opportunities for GL shipbuilding if funded and structured correctly
- Increase repair opportunities which provides revenue to level demand
- Could create new GL ship type for protected market
- Could create new shipping market
- Positive environmental impact
Markets Opportunities

- Traditional Great Lakes
  - Lakers are being repaired not replaced
  - Energy cost increase

- General Commercial
  - GL Shipyards are not competitive internationally or nationally in most cases except for Manitowoc Group shipyards
  - Jones Act supported coastal short sea shipping provides opportunity
    - Title XI funding

- Military
  - Current activities are the Coast Guard Deepwater Project and the 300 Ship Navy
    - Currently underway with a large portion of work going to Gulf Coast yards
  - Manitowoc Group currently builds for the Coast Guard and Navy LCS project

- OPA 90
  - Currently backlog for double hull oil barges
Austal: A Possible Model for Great Lakes

- Austal designs and constructs high speed, complex commercial and defense aluminum vessels
- Austal is a high skilled engineering company that builds vessels not a shipbuilder who supports itself through in-house engineering
- Advanced materials such as composites, thin steel and aluminum are the future but require high skilled, highly technical engineers
- Advanced materials also require advance manufacturing skills, technology, and equipment
Great Lakes Austal Model

- Design an advanced vessel for SSS container / general cargo that is uniquely suited for the GL
- Vessel should be part of total GL supply chain potential
- Create an engineering and manufacturing base to support the production, design, development of such a product
Great Lakes Shipbuilding and Repair Opportunities Conclusion

- **Repair**
  - Increased demand for repair and conversion
  - Labor force suited for this type of work
- **General Commercial**
  - Not viable for sustained industry unless a new market is created
- **Jones Act (traditional)**
  - Short term possibility
  - Late market entry
- **Military**
  - Low probability for large Navy contracts (LCS issues)
  - Coast Guard currently doing work on GL
  - Not viable for industry growth
- **OPA90**
  - High volume of work
  - Good short term opportunity
  - Does not increase GL competitiveness
- **Austal Model**
  - High risk
  - High potential
    - Other heavy industrial base provides good resources
    - Long term viability
  - Large government funding needed
Questions