Future of Barging - A Carrier's Perspective
Inland Barge Market Outlook - A Carrier’s Perspective
Inland Barge Market - Who are we?

Facts about American Commercial Barge Line

- One of the nation's largest inland carriers
- 70 million tons of liquid and dry cargoes annually
- 3,600 barges and 130 towboats
- 11 fleets and three terminals
- ~2,100 employees

Inland Barge Industry

- 8,000 miles inland navigable waterways
- 30 Liquid and 31 Dry Carriers
- 33,000+ Mariners/50,000+ Jobs
- 540 million tons transported in 2018
  - 60% of U.S. grain exports
  - 22% of domestic petro. and petro. products
  - 20% of power generating coal
Continued Carrier Consolidation

Technology Advancements

Supply/Demand Equilibrium

Winners and Losers
Why Consolidation? Efficiencies of scale
- Robust capability across end-markets and geography
- Increased offerings and capabilities at less cost per unit
- Absorption of regulatory compliance - person to a team
- Generation-passing - leadership challenges, monetizing business

Who benefits? Shippers and Carriers
- Less carriers to choose from, but more robust capabilities
- Scale to handle ship-load quantities to end-markets

Carriers must be vertically integrated - just to get the work done!

Continued Carrier Consolidation
Continued Carrier Consolidation

**Liquid Fleet**
- **Top 7**
  - Kirby
  - ACBL
  - Canal
  - Ingram
  - FMT
  - Blessey
  - Marathon
- **72.1%**

**Dry Fleet**
- **Top 7**
  - Ingram
  - ACBL
  - ADM
  - CGB
  - Cargill
  - SCF
  - CTC
- **73.0%**

**Carriers**
- 1998: 92
- 2018: 52

**Fleet Size**
- 1998: 22,967
- 2018: 22,801

**Same Fleet**
- Dry Avg. Age: 15
- Liquid Avg. Age: 15

**Less Tons**
- Dry Avg. Age: 15
- Liquid Avg. Age: 15
Inland Barge Market Outlook - A Carrier’s Perspective

- Continued Carrier Consolidation
- Technology Advancements
- Supply/Demand Equilibrium
- Winners and Losers
Technology Advancements

➢ Navigation
➢ Vessel Operations
➢ Communication and Data
● Auto Pilot - how far away are we?
  ○ Auto-assist now
  ○ Drone assists

● Rose Point Electronic Mapping
  ○ Improved situational awareness, overall safety
  ○ Most efficient transit times
  ○ Voyage data recording
  ○ Exceptional and time-tested reliability

● Electronic buoys and other navigation aids
  ○ Hand-in-hand with Electronic Mapping
Vicksburg Bridge - Drone Assist
● Auto Pilot - how far away are we?
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Navigation
Rose Point Electronic Mapping
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Technology Advancements

➢ Navigation

➢ Vessel Operations

➢ Communication and Data
Tier 3 → Tier 4 (804+ HP)
- SCRs on exhaust or EGR
- Increased electronics and cooling
- Increased cost 80%-100%
- Diesel Emissions Fluid (DEF)

SCR units Urea is sprayed into the exhaust to reduce Nox emissions

Propulsion Concepts
- Z-drive: fuel, maneuverability
- Diesel Electric: GenSets, electric motors
- Hybrid Diesel: electric boost motors
- Articulated or Multiple Steering Rudders - increase steering force

Vessel Operations
Vessel Operations

Old
- Reactionary; Trouble-shooting
- Swap Parts
- Excess Inventory
- Poor Records (paper)

Current
- Mfg Maintenance Schedules
- Managed Inventory
- Enterprise Asset Mgmt
- Electronic Sensors & Alarms

Future
- Condition-based & Predictive
- Real-time shoreside oversight
- PM’s Based on Failure Analytics
- More sensors, AI & Data Mining
  - Vibration
  - Machine Learning
  - Onboard Oil Analysis
  - Crankshaft Electro-Mag
Technology Advancements

➢ Navigation

➢ Vessel Operations

➢ Communication and Data
 Improved Communications and Data Sharing

● Work
  ○ 5G cellular network: more and faster data
  ○ Vessel-side similar to shore-side capabilities
  ○ GPS, sensors, and Internet-of-Things
  ○ Live, online training, Video conferencing
  ○ More information shared securely between nearby vessels, service providers, lock operators

● Play
  ○ Streaming media: hometown sports and shows
  ○ Video calls with family and friends
  ○ Online educational opportunities
  ○ Is that 3-D or virtual reality?
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Supply/Demand Equilibrium

What drives it?

- End-market demand
- Energy renaissance
- Global Trade
- Cheap natural gas
- Barge Construction
Supply/Demand Equilibrium

Dry Demand v. Fleet
1998 - 2018

Liquid Demand v. Fleet
1998 - 2018
Supply/Demand Equilibrium

Cement

EAF v. Int. Mills

Fertilizer

OLD

NEW
Supply/Demand Equilibrium

1998 - 2018 Barged Coal v. Open Top Fleet

Barged Coal
Open Top Fleet

Legend:
- Barged Coal
- Open Top Fleet
Supply/Demand Equilibrium

Comparison of Inland River Barge Ton-Mile Demand and Fleet Size

Fleet Size (Right Axis)

Ton-Miles (Left Axis)

Fleet Size (Right Axis)

Ton-Miles (Left Axis)


Ton-Miles (Billions)

Fleet Size (Billions)

20,000 19,500 19,000 18,500 18,000 17,500 17,000 16,500 16,000 15,500 15,000 14,500 14,000 13,500 13,000 12,500 12,000 11,500 11,000 10,500 10,000 9,500 9,000 8,500 8,000 7,500 7,000 6,500 6,000 5,500 5,000 4,500 4,000 3,500 3,000 2,500 2,000 1,500 1,000 160 170 180 190 200 210 220 230 240 250
Continued Carrier Consolidation

Technology Advancements

Supply and Demand Equilibrium

Winners and Losers
Who will be the Biggest Winners and Losers?

➢ Shippers - Winners
➢ Carriers - Challenges
➢ Public - Winners
➢ Environment - Winners
Shippers - Winners

One 15-Barge Tow

216 Rail Cars + 6 Locomotives

1,050 Large Semi Tractor-Trailers
A loaded tank barge carries 27,500 barrels of gasoline, enough to keep about 2,500 automobiles running for an entire year.
Who will be the Biggest Winners and Losers?

➢ Shippers - Winners
➢ Carriers - Challenges
➢ Public - Winners
➢ Environment - Winners
Challenges - regulatory challenges are stifling
Carriers - Challenges

Carriers Challenges - SubM Cost and Benefit

● Four Areas of Impact/Cost
  ○ Audit/Survey: Costs = Time & Material
  ○ Training: Systems & Policies
  ○ New Equipment Requirements
  ○ Material Condition of Vessel

● SubM Benefit to Carrier

● SubM Challenges
User Taxes

- Barge Industry is only beneficiary contributing to the IWTF - $115M annually
- Many benefit from our industry’s contributions at no cost to them

- Hydro electric industry
- Water supply & irrigation
- Real estate development
- Flood protection
- Commercial fishing
- Industrial Water Supply
- Municipal Water Supply
- Recreational Boaters
Who will be the Biggest Winners and Losers?

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➢ Carriers - Challenges

➢ Public - Winners

➢ Environment - Winners
GDP

$33.8 BILLION TOTAL

$9 BILLION
DIRECT GDP CONTRIBUTIONS

$24.8 BILLION
INDIRECT & INDUCED
GDP CONTRIBUTIONS

TAXES

$5.2 BILLION TOTAL

$1.2 BILLION
DIRECT TAX CONTRIBUTIONS

$4 BILLION
INDIRECT & INDUCED
TAX CONTRIBUTIONS

JOBS

50,480
Direct Jobs

251,070
Indirect & Induced

301,550
TOTAL JOBS
SUPPORTED BY
THE INDUSTRY

Public - Winners
Public - Winners

Easing Rail and Highway Congestion in our Communities

- Waterways provide great cargo capacity
- Move freight more safely, less congestion
- Barges carry 49 million truck trip equivalent

McAlpine’s Top Commodities (2017)

- Soy beans: 20.9 million tons
- Coal: 4.8 million tons
- Limestone: 2.0 million tons
Who will be the Biggest Winners and Losers?

➢ Shippers - Winners
➢ Carriers - Challenges
➢ Public - Winners
➢ Environment - Winners
Who will be the biggest winners and losers?

Barging is THE most efficient, greenest and safest mode of bulk transportation.

- **Ton-Miles Traveled per Gallon of Fuel**
  - Barging: 2.12
  - Railroad: 5.95
  - Truck: 6.04

- **Tons of CO₂ per Million Ton-miles**
  - Barging: 15.6
  - Railroad: 21.2
  - Truck: 154.2

- **Spills of More Than 1000 Gallons**
  - Barging: 1
  - Railroad: 477
  - Truck: 647

- **Fatalities**
  - Barging: 79
  - Railroad: 21.9
  - Truck: 145
Infrastructure Delivery

More beneficiaries - sharing the cost burden
Infrastructure

- Improve reliability
- Improve capacity (NESP)
- Improve infrastructure delivery
- Improved Corps project delivery process
- Broaden beneficiaries support