Future of Barging - A Carrier's Perspective

Inland Marine Expo - May 2019

American Commercial Barge Line

Inland Barge Market Outlook - A Carrier's Perspective

American Commercial Barge Line

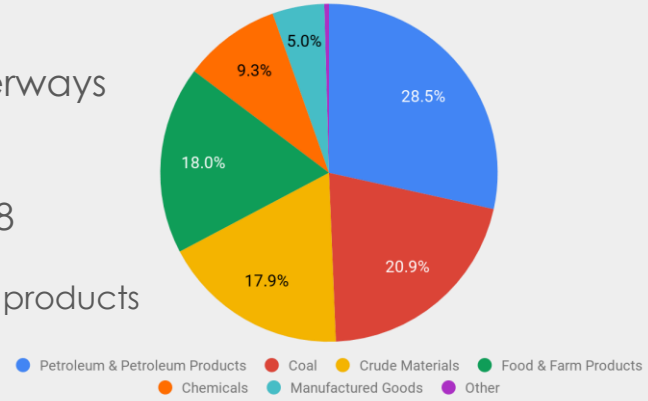
Inland Barge Market - Who are we?

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



Inland Barge Market Outlook - A Carrier's Perspective

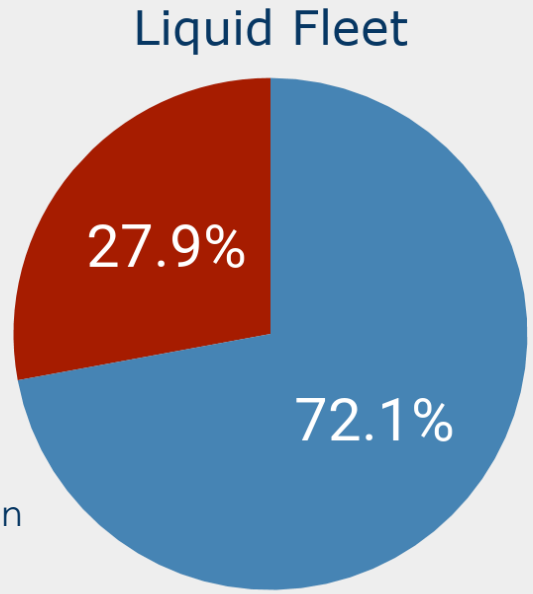
- Continued Carrier Consolidation
- Technology Advancements
- Supply/Demand Equilibrium
- Winners and Losers

- 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!

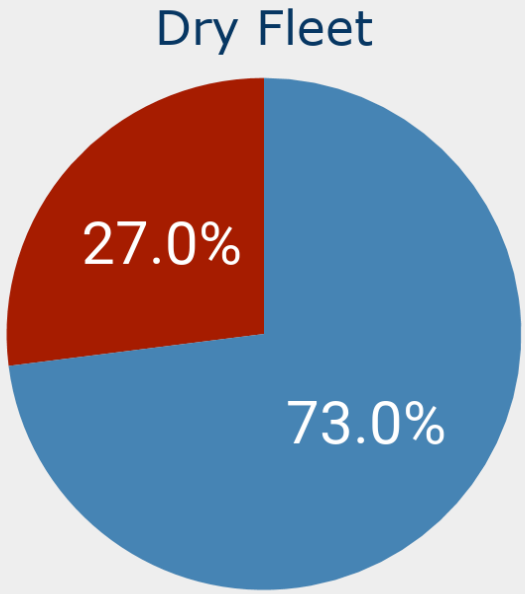
Continued Carrier Consolidation

ACBL American Commercial Barge Line

Continued Carrier Consolidation



TOP 7
Kirby
ACBL
Canal
Ingram
FMT
Blessey
Marathon



TOP 7
Ingram
ACBL
ADM
CGB
Cargill
SCF
CTC

	Carriers	Fleet Size		Dry Avg. Age	Liquid Avg. Age
1998	92	22,967	Same Fleet	15	24
2018	52	22,801	Less Tons	15	15

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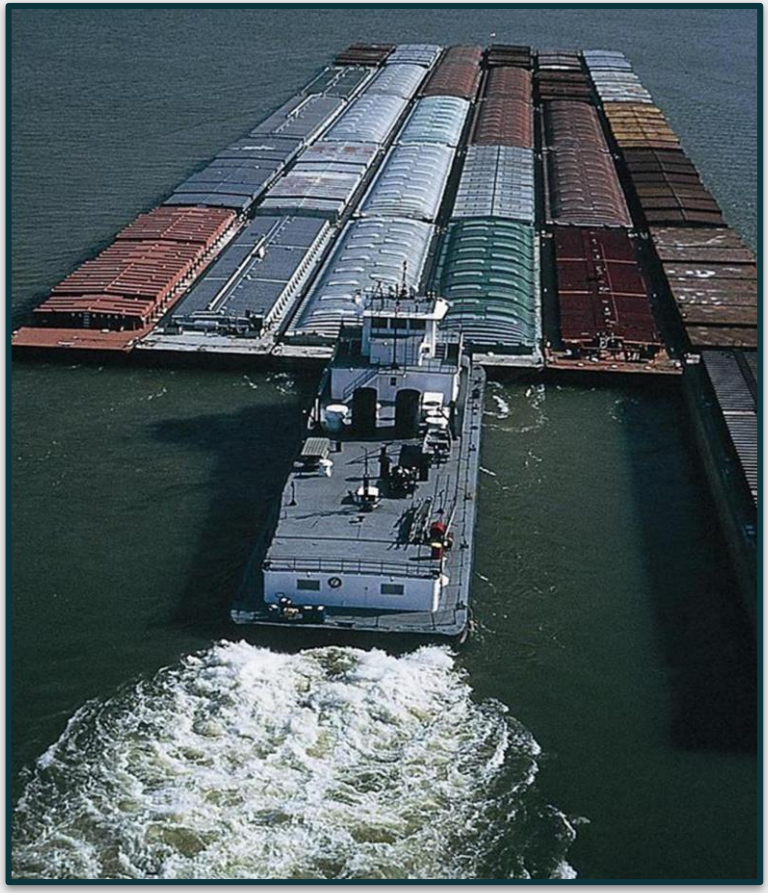
Technology Advancements



- 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

Navigation

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Vicksburg Bridge - Drone Assist

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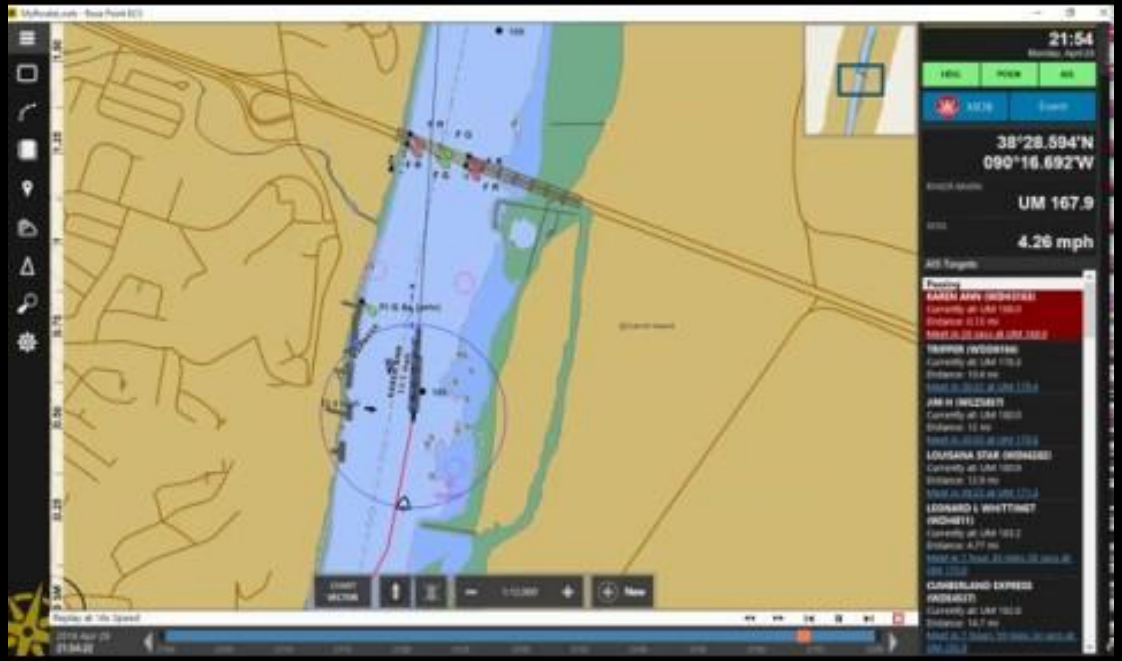
Navigation

American Commercial Barge Line

Rose Point Electronic Mapping



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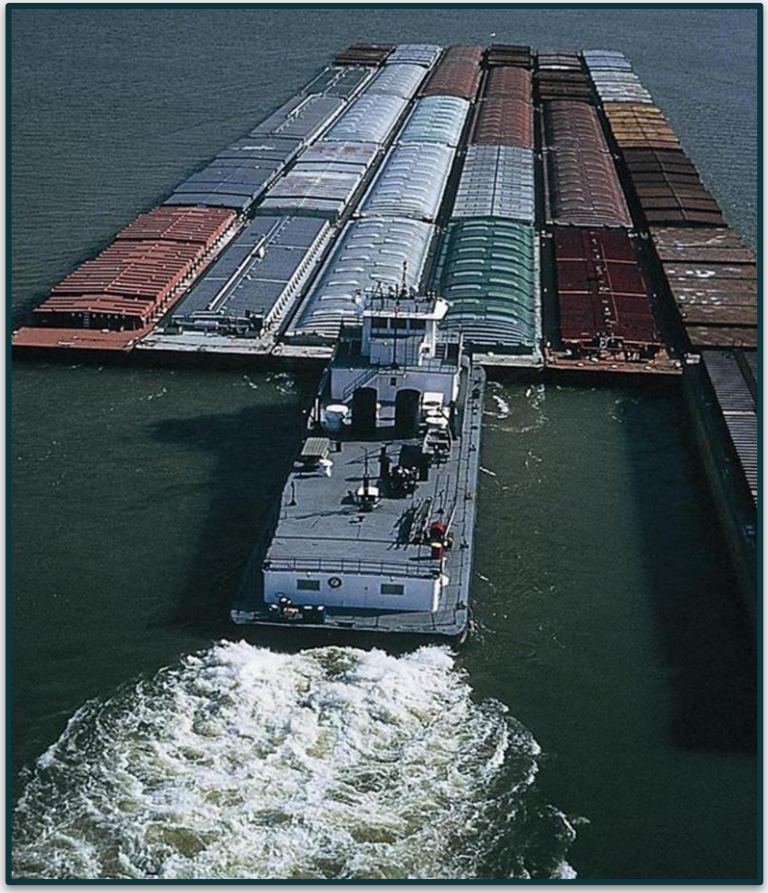
Technology Advancements



- 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

Old

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

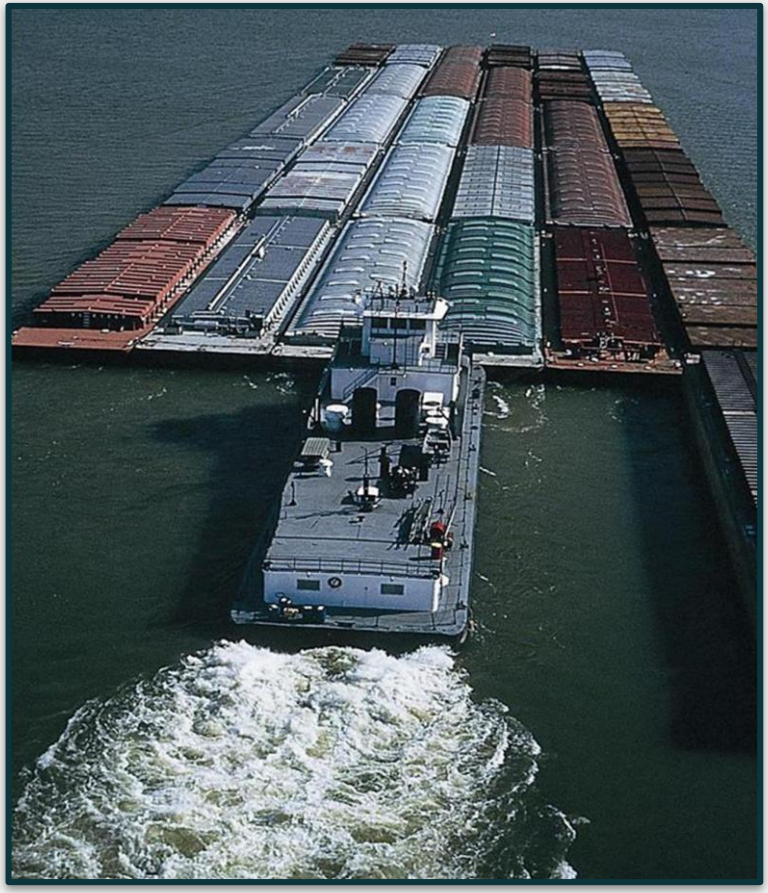
Current

- 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

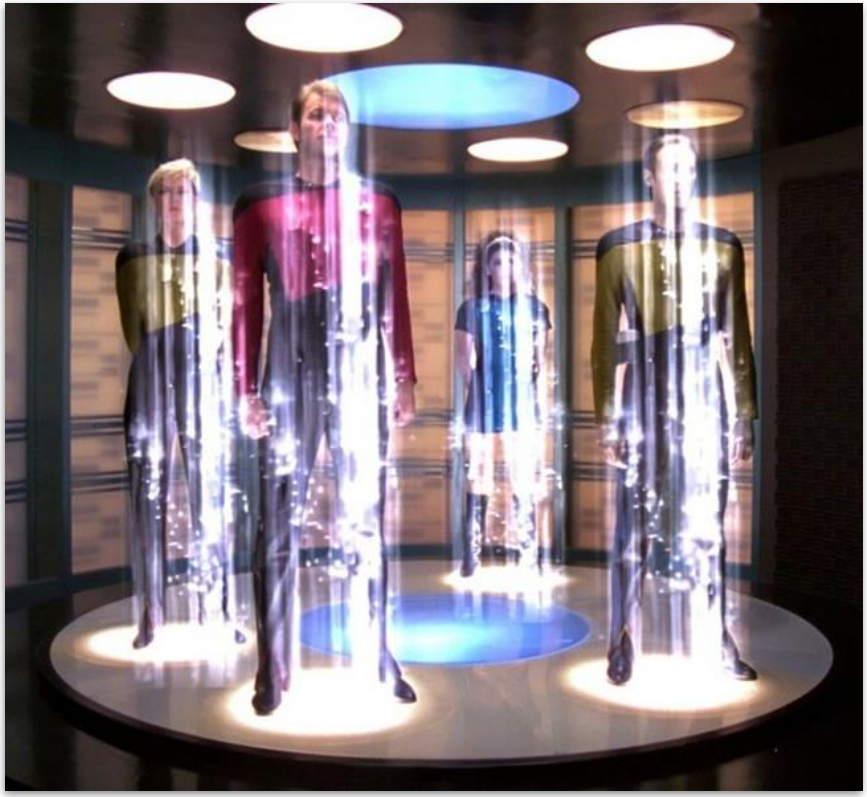
Technology Advancements



- 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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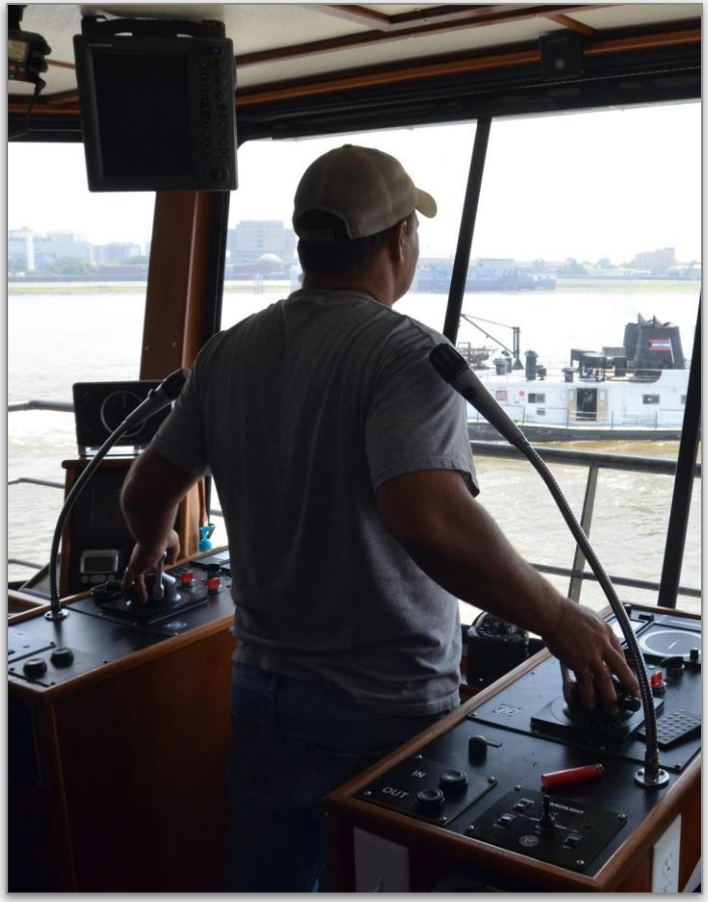
Supply/Demand Equilibrium

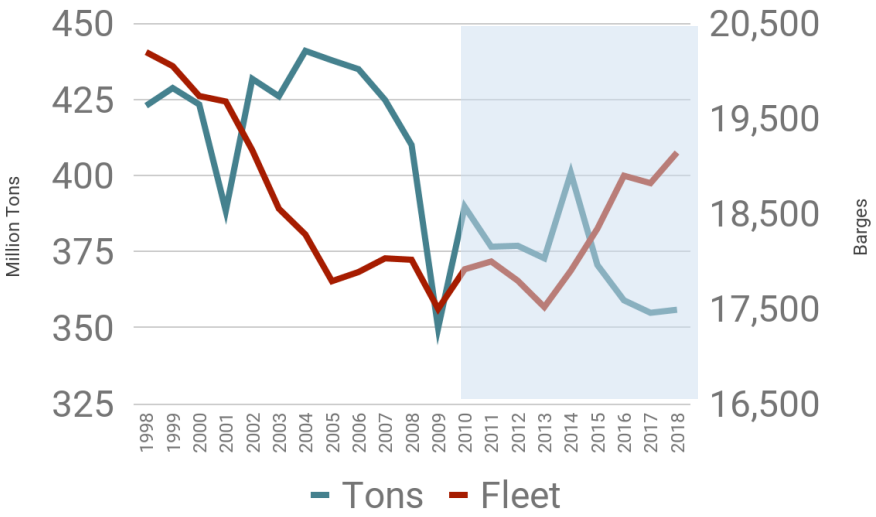


What drives it?

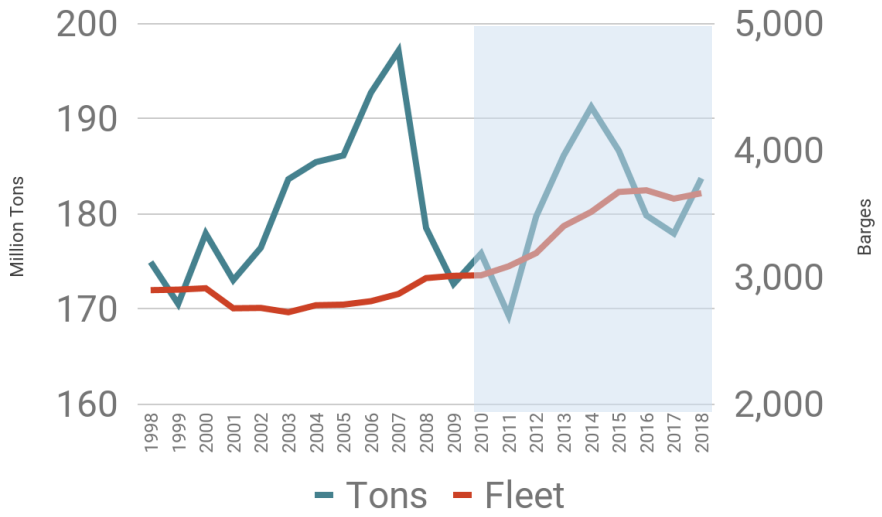
- End-market demand
- Energy renaissance
- Global Trade
- Cheap natural gas
- Barge Construction

Supply/Demand Equilibrium

Dry Demand v. Fleet 1998 - 2018



Liquid Demand v. Fleet 1998 - 2018



Supply/Demand Equilibrium

Cement

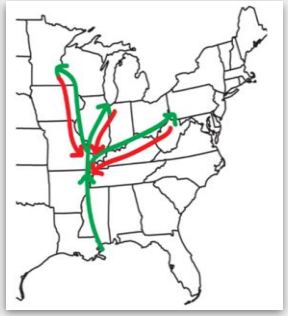
OLD

NEW

EAF v. Int. Mills

OLD

NEW

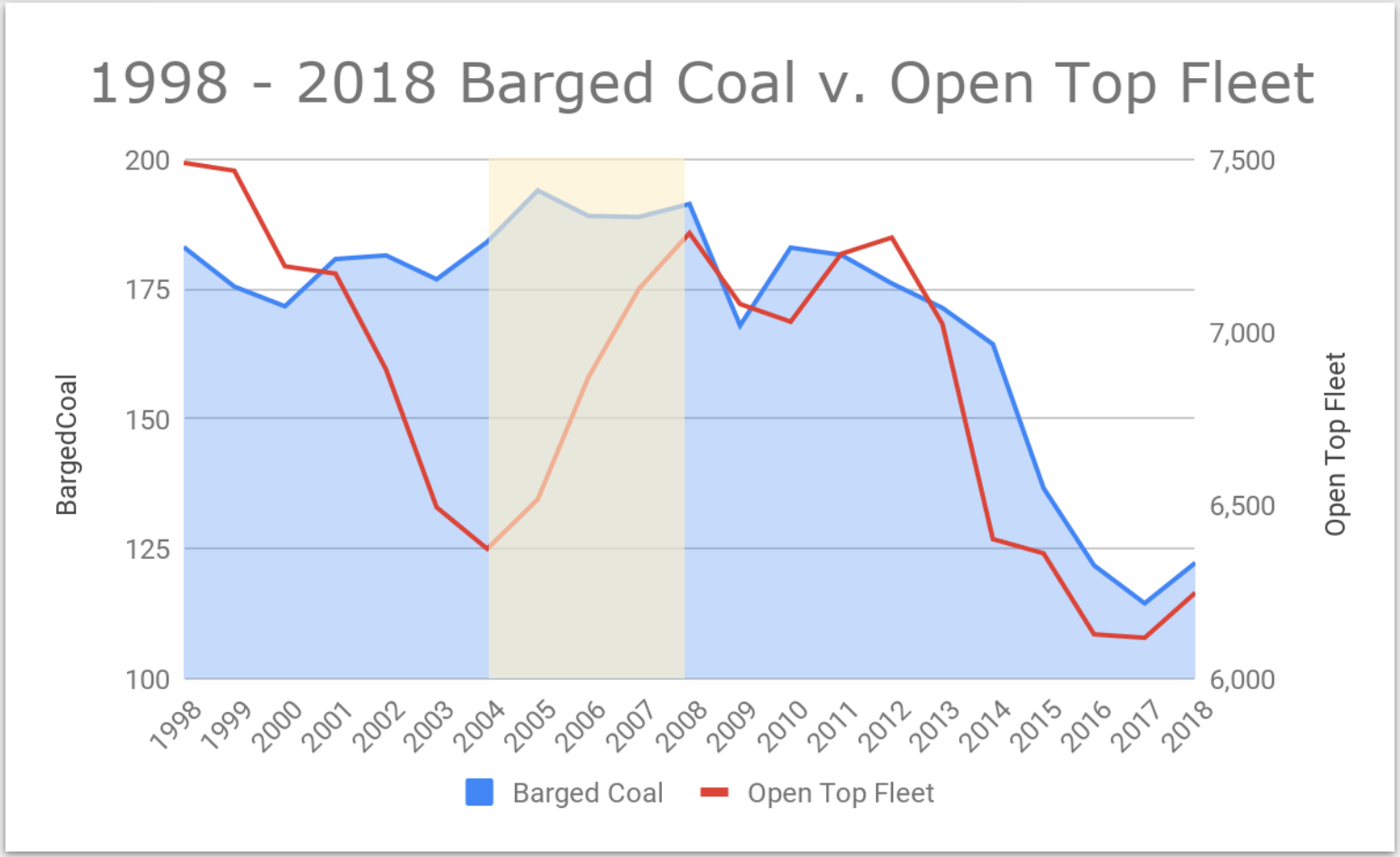


Fertilizer

OLD

NEW

Supply/Demand Equilibrium



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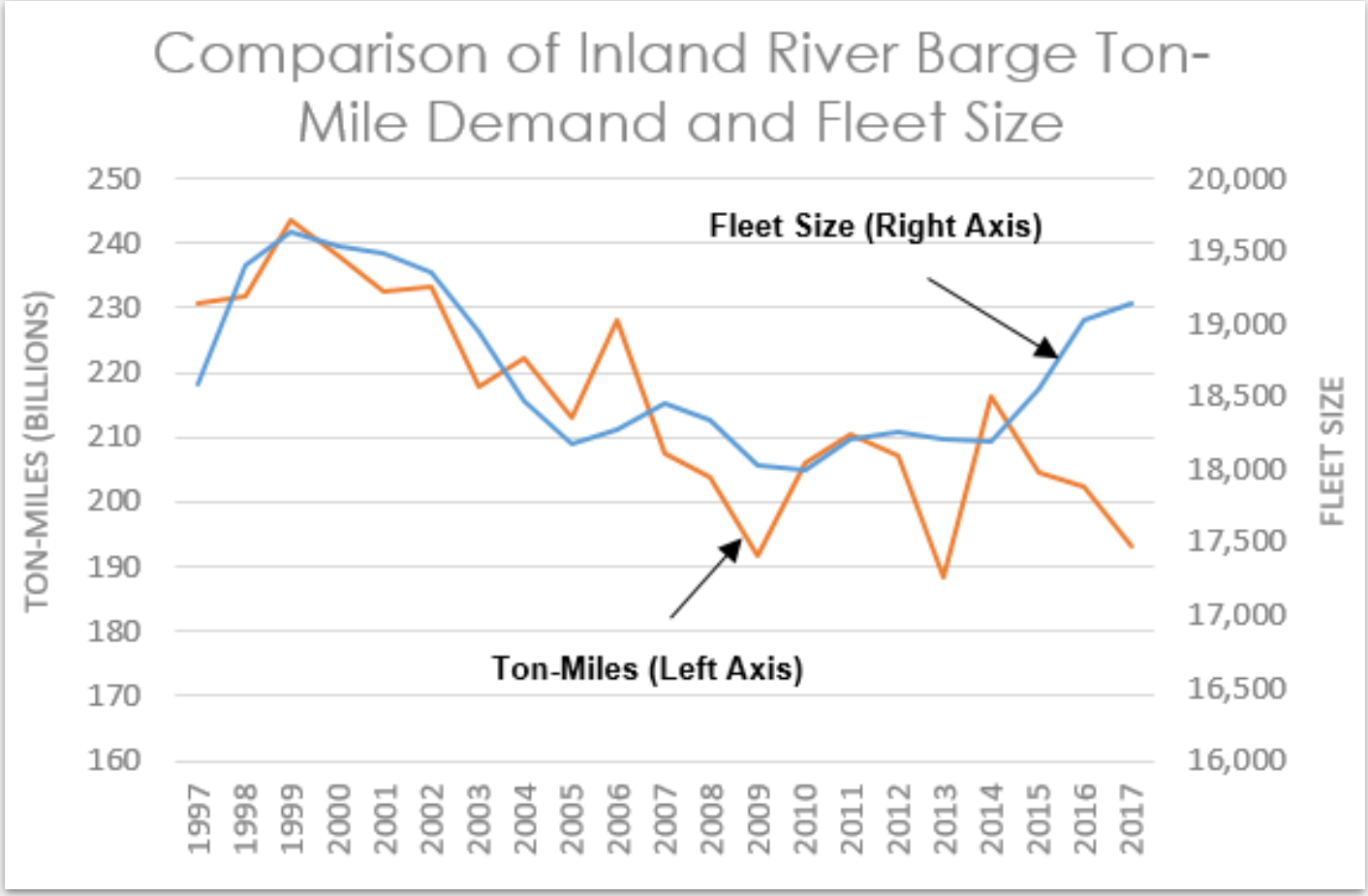

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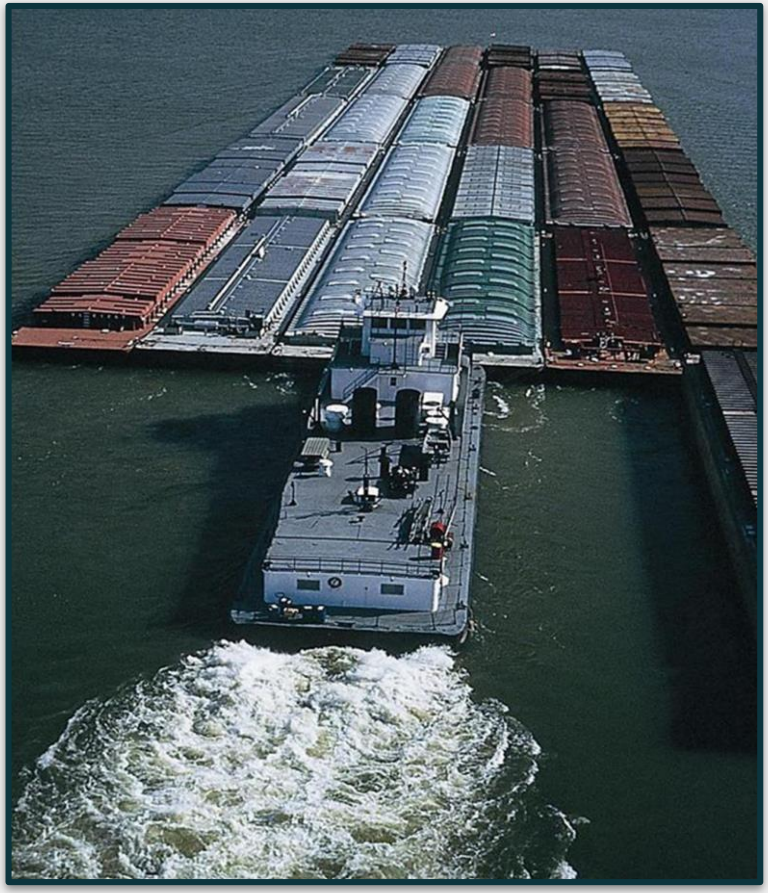
Who will be the Biggest Winners and Losers?



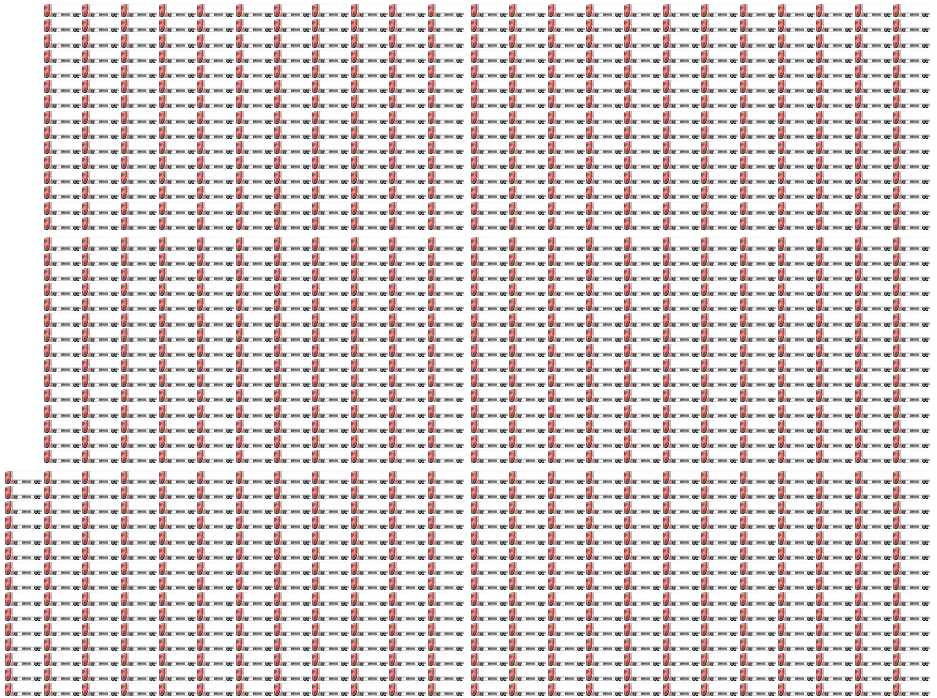
- Shippers - Winners
- Carriers - Challenges
- Public - Winners
- Environment - Winners

Shippers - Winners

One 15-Barge Tow

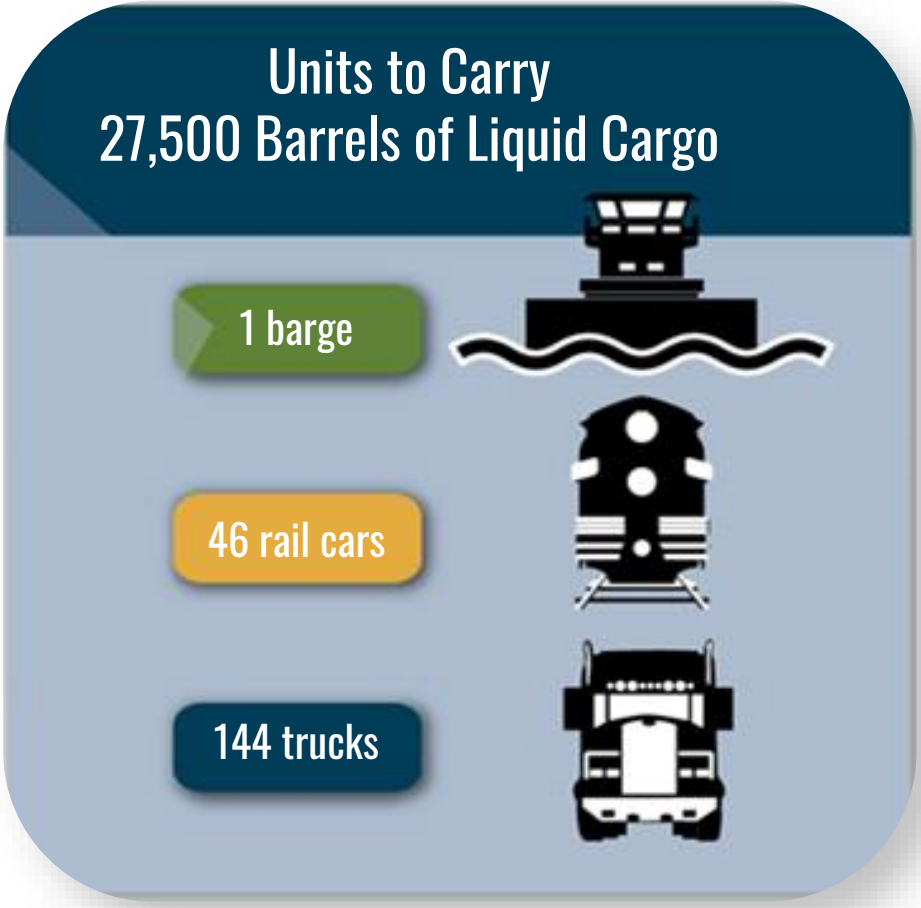
216 Rail Cars + 6 Locomotives

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.

Units to Carry 27,500 Barrels of Liquid Cargo



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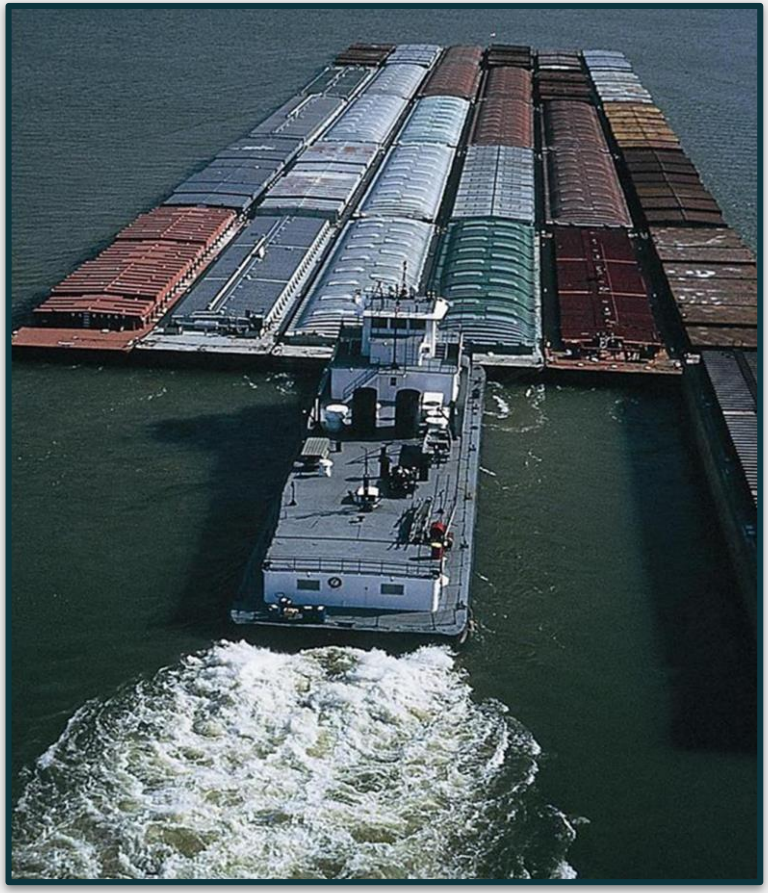

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Certification and Watchkeeping for Seafarers

Marpol Annex VI

Towing Vessel Inspection

Certification and Watchkeeping for Seafarers

Mariner Credentialing

Vessel Security Plans

Automatic Identification Systems

Ballast Water

State Taxes

TWIC

Medical Standards

Jones Act

Fatigue and Crew Endurance

Vessel Discharges

Maritime Security

International Convention on Standards

Future of Navigation

IMO Polar Code

Tank Barge Emissions

ATONS

Cyber Risk Management

Federal Preemption

Maritime Labor Convention

Missouri River

Marine Engine Emissions

Infrastructure and Funding

Invasive Species

State Actions

Renewable Energy

Certain Dangerous Cargoes

Sewage No-Discharge Zones

Tank Vessel Response Plans

Safe Manning

Challenges - regulatory challenges are stifling

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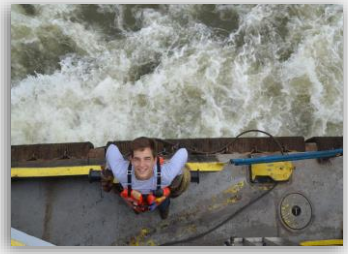
Carriers Challenges - SubM Cost and Benefit

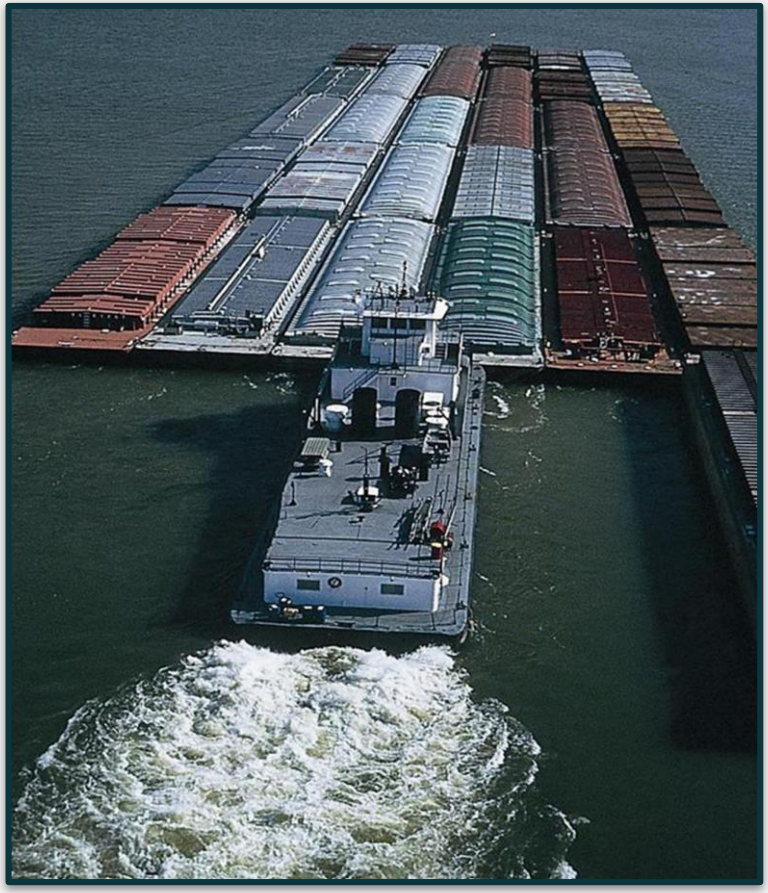
- Four Areas of Impact/Cost
  - Audit/Survey: Costs = Time & Material
  - Training: Systems & Policies
  - New Equipment Requirements
  - Material Condition of Vessel
- SubM Benefit to Carrier
- SubM Challenges



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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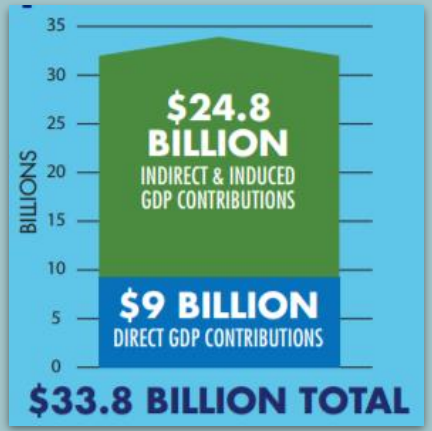
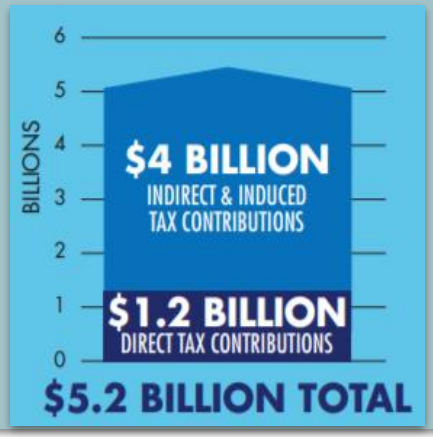
GDP



TAXES



JOBS

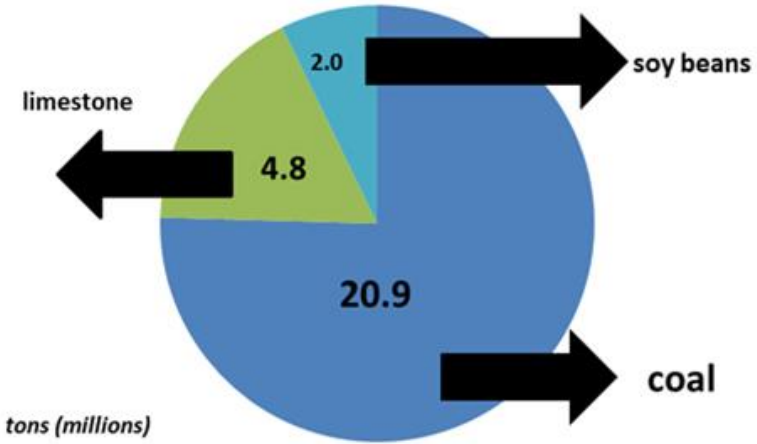
50,480
Direct Jobs

251,070
Indirect & Induced

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)



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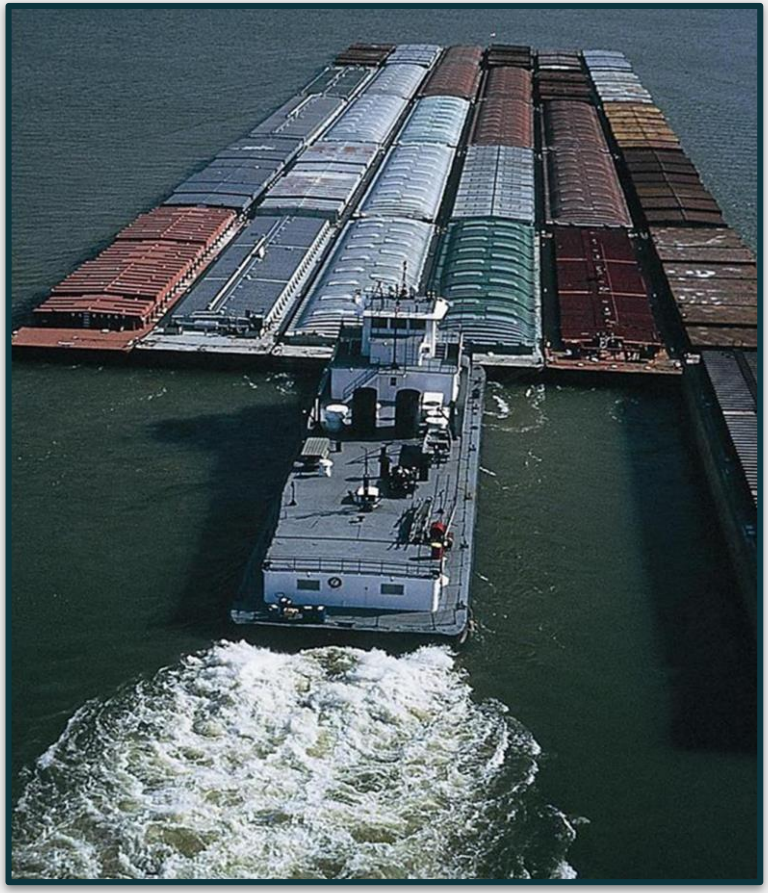

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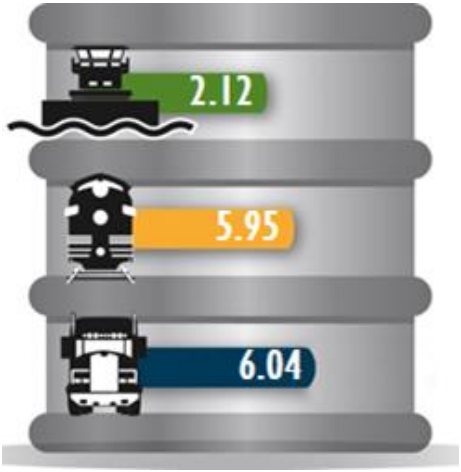
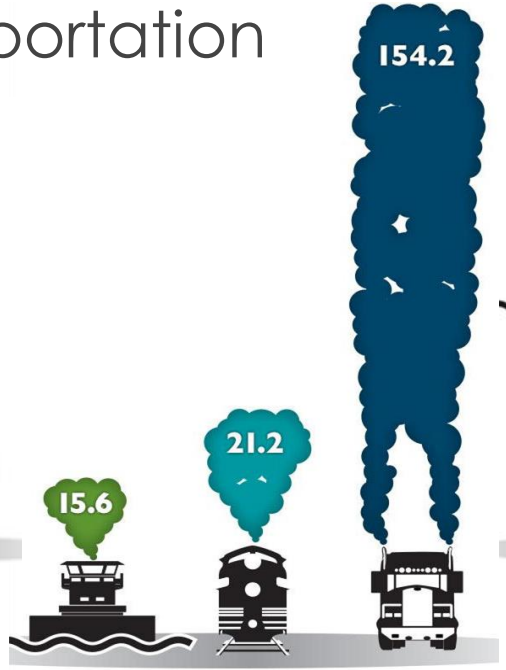
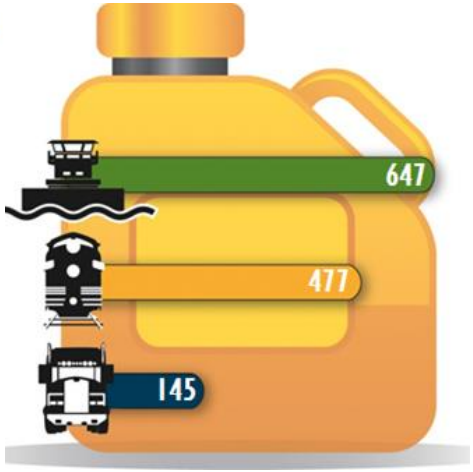
Barging is **THE** most **efficient**, **greenest** and **safest** mode of bulk transportation



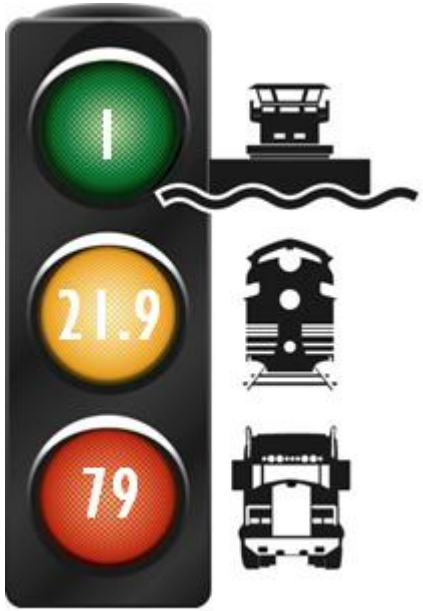
Ton-Miles Traveled per Gallon of Fuel



Tons of CO_2 per Million Ton-miles

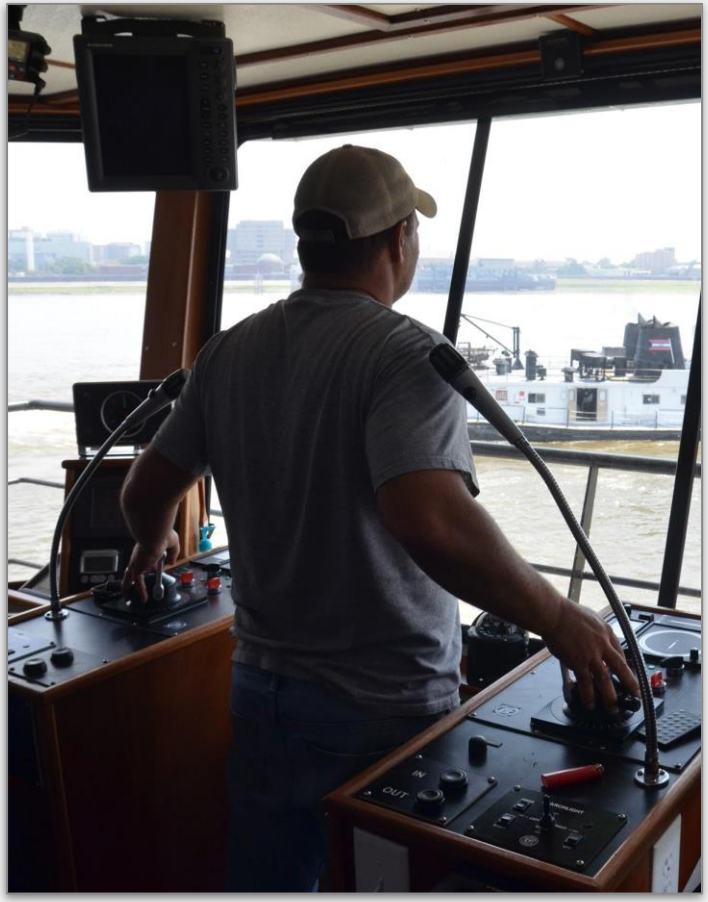


Spills of More Than 1000 Gallons

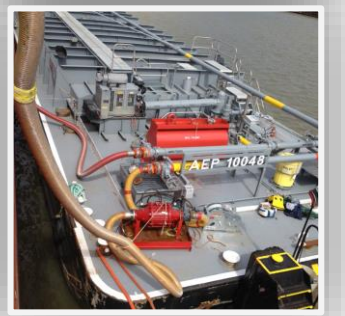


Fatalities

Closing



- 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

Criton Corporation
Informa Economics IEG Barge Commodity Profile
Informa Economics IEG Barge Fleet Profile
National Waterways Foundation
Price Waterhouse Coopers
The American Waterways Operators
US Army Corps of Engineers
US Department of Transportation - Maritime Administration

Closing

American Commercial Barge Line