State of the Inland Barge Industry

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Charting the Course

- IEG Vantage
- Barge Fleet Profile Service
- Macro Drivers
- Barge Fleet Situation and Outlook
- Barge Commodity Situation and Outlook
- Barge Freight Rates
- Infrastructure Investment
- Questions and Answers
IEG Vantage
A business unit of IHS Markit
Macro Drivers
Key Themes and Trade Issues Impacting Macro Environment

› Trade disputes and tariffs
› Geopolitical events
› Global macroeconomic activity demonstrating mixed opportunity
› Global supply shift underway in volume and location
› Cropping area, herd and exploration expansion; mine contraction
› Infrastructure issues, and improvements
› Global consumption not slowing, but China is
› Margin compression
› Farmer, producer, manufacturer profitability at risk
› Merger and acquisition continues; grain alphabet in jeopardy?
› Revolving door traders, merchandisers & leadership across supply-chain
› Technology enhancements and interruption from farm gate to consumer
  • Big data, AI, blockchain, autonomous functions
› Consumer preferences:
  • Impossible meat, non-GMO, organic, renewables, electric vehicles, emissions
› Weather Still Matters
Dry Bulk Ocean Freight Rates Reaching Levels from Nine Years Ago

Monthly Average Baltic Dry Index
Dry Bulk Ocean Freight Rates Out of Center Gulf Strengthening Faster than Pacific Northwest

Monthly Average Ocean Freight to Japan

- Spread
- Gulf
- PNW

Dollars per Metric Ton

Month and Year

Jan-03 to Jul-19
Dry Bulk Ocean Freight Rates to Europe Riding Gulf Strength

Monthly Average Ocean Freight Gulf to Europe

Month and Year

Dollars per Metric Ton
International Maritime Organization (IMO) 2020

- In 2016, IMO announced the effective date for reduction of marine fuel sulphur is January 1, 2020. Under the global cap, ships required to use marine fuels with sulphur content of no more than 0.5% against current limit of 3.5% to reduce greenhouse gas emissions. The Emission Control Areas (ECAs) will remain at the 2015 standard of 0.1% content.
- Ship owners deciding 1) continue using high sulphur fuel oil with scrubbers or exhaust gas cleaning systems; 2) switch to low sulphur fuel options; or 3) LNG fuel.
- Impact represents approximately 75% of global marine fuel demand compared to demand of ECA.
- In total, 3 million barrels per day of High Sulphur Fuel Oil bunkers will need to switch to 0.5% fuel through blending with gasoil, plus improved logistics segregation.
- Refineries adjusting late this year will create supply chain issues.

0.1/0.5%S Fuel Oil
- Minimise operational difficulty and cost
- Variability of quality of blends per supplier
- Only a few suppliers can offer reliable supply

MGO/DMA
- Convenient and widely available
- Operational experience in industry
- Higher cost
- Thermal shock and lubricity issues

Scrubber New/Retrofit
- Cheaper fuel and quick payback
- Limited operating experience
- Ship stability and space
- Safe sludge handling and disposal necessary

LNG New Build/Retrofit
- Proven technology and reduction SOx, NOx and PM
- Lower GHG emissions
- Growing availability
- Cost advantage to MGO/DMA
U.S. Crops Off to Late Start; Still Uncertainty Around Yield Potential
Memphis River Gage Readings varied 35.5 feet February to September; Not Historic as Compared 2011 to 2012, but Significant Nonetheless; Meanwhile Epic Year
Barge Fleet Situation and Outlook
Larger Barge Fleet Despite Slightly Lower Volumes Moved

Size of Inland Barge Fleet

- Dry Covered
- Dry Open
- Tank
- Tonnage Moved

Year
- 1990
- 1991
- 1992
- 1993
- 1994
- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018

Number Barges by Type
- 0
- 100
- 200
- 300
- 400
- 500
- 600
- 700
- 0
- 4,000
- 8,000
- 12,000
- 16,000
- 20,000
- 24,000
- 28,000

Million Tons Moved
- 0
- 100
- 200
- 300
- 400
- 500
- 600
- 700

IEG Vantage, Barge Fleet Profile
Covered Fleet Record Large as Volumes Fall on Dropping Soybean Movements

Size of Inland Barge Dry Covered Fleet

- Dry Covered
- Tonnage Moved

IEG Vantage, Barge Fleet Profile
Open Fleet Expands on Find Back while Volumes Bottom

Size of Inland Barge Dry Open Fleet

- **Dry Open**
- **Tonnage Moved**

Year

Number Barges by Type

 Million Tons Moved

IEG Vantage, Barge Fleet Profile
Tank Fleet Expands as Volumes Expand

Size of Inland Barge Tank Fleet

IEG Vantage, Barge Fleet Profile
Barge
Commodity
Situation and
Outlook
Commodities moved by Barge on the Inland Navigation System (tons)

- **Coal**: 24%
- **Crude Petroleum**: 7%
- **Nonmetallic Minerals, Except Fuel**: 3%
- **Lumber, Wood, Pulp & Allied Prod.**: 1%
- **Chemicals & Allied Prod.**: 3%
- **Petroleum & Coal Prod.**: 21%
- **Stone, Clay, Glass & Concrete Prod.**: 2%
- **Chemical Prod.**: 6%
- **Flour, Animal Feed & Gr. Prod.**: 2%
- **Other & Misc.**: 1%
- **Primary Metal Prod.**: 3%
- **Coal**: 24%
- **Crude Petroleum**: 7%
- **Nonmetallic Minerals, Except Fuel**: 3%
- **Lumber, Wood, Pulp & Allied Prod.**: 1%
- **Chemicals & Allied Prod.**: 3%
- **Petroleum & Coal Prod.**: 21%
- **Stone, Clay, Glass & Concrete Prod.**: 2%
- **Chemical Prod.**: 6%
- **Flour, Animal Feed & Gr. Prod.**: 2%
- **Other & Misc.**: 1%
- **Primary Metal Prod.**: 3%
Covered Barge Commodities on the Inland Navigation System (tons)

- **Farm Prod.** 55%
- **Flour, Animal Feed & Gr. Prod.** 5%
- **Metallic Ores** 4%
- **Primary Metal Prod.** 9%
- **Nonmetallic Minerals, Except Fuel** 6%
- **Soil, Sand, Rock & Stone** 7%
- **Stone, Clay, Glass & Concrete Prod.** 1%
- **Other & Misc.** 1%
- **Chemicals & Allied Prod.** 12%
- **Lumber, Wood, Pulp & Allied Prod.** 0%
- **Metallic Minerals, Except Fuel** 6%
- **Food Kindered** 13%
- **Barley, Oats, Rye and Rice** 3%
- **Sorghum Grains** 1%
- **Soybeans** 36%
- **Corn** 35%
- **Wheat** 12%
Total Crop Exports Plagued by Trade Tensions and Competition; Center Gulf Suffered by Navigation, PNW by Market Access

Total Grain and Soybean Exports by Port

- Center Gulf
- Columbia River
- Puget Sound
- Texas Gulf
- Lakes
- Atlantic
- Interior
- Total

Crop Year (Sep/Aug)

Port Million Bushels

Total Exports Million Bushels
Coal’s Slow Death Marches On; Half of its Peak Years

Open Barge Coal Volumes

Year
Million Tons


Million Tons
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340
Commodity Tons and Tonmiles on the Inland Navigation System in Total and for Liquid Tank Market
Commodity Tons and Tonmiles on the Inland Navigation System by for the Dry Barge Sectors

Domestic Covered Barge Traffic

Domestic Open Barge Traffic
Barge Pressure Index
Open Barge

Open Barge Utilization

Open Barge Utilization on Ton-mile Basis
Barge Freight Rates
Barge Freight Rates a Mixed Bag
Navigation Challenged Since October 2018, and Long Way to Go

Illinois River Barge Freight Rate (percent of tariff) by Crop Year (Sep/Aug)

- 2016
- 2017
- 2018
- 3-Yr. Ave.
Infrastructure Investment
Infrastructure Investment Leads to Opportunity: Columbia River

Loadings of Greater than 55,000 Metric Tons of Grain and Soybean Export Inspections through Columbia River Elevators to Asia
Infrastructure Investment Leads to Opportunity: Mississippi River

Loadings of Greater than 55,000 Metric Tons of Grain and Soybean Export Inspections through Mississippi River Elevators to Asia
Infrastructure Investment Leads to Opportunity: Study Results of Investing in Infrastructure, it Matters

Soybean Landed Cost Analysis to China of Various U.S. Infrastructure Alternatives Compared to Brazil

- **North Mato Grosso, Brazil 2018**
- **Davenport, IA 2018**
- **Status Quo 2045**
- **Increased Investment 2045**
- **Decreased Investment 2045**

- **Ocean**
- **Barge**
- **Truck**
- **Farm Value**
Barge Product Opportunities
Barge Fleet Profile Report

- Thirty-Second Annual Report
- Survey of Inland Barge Operators
- Results reflect fleet dynamics as of December 31, 2018
- Number barges by operator, by year built
- Covered, Open and Tank Barges
- 10-Year Asset Value
- New Builds and Retirements
- Turns per year
- Subscriber Webinar

www.bargefleet.com
Barge Commodity Profile Report

- Fifteenth Annual Report
- Army Corps of Engineers Waterborne Commerce Data
- Internal Domestic Commodity Movements
- Current through Calendar Year 2017
- Commodities Assigned to Barge Type
- IEG Vantage Fundamental Analytics
- www.bargefleet.com
Inland Barge Fact Book

› Semi-Annual Report
› Evaluation and Outlook of the Market Opportunities for the Barge and Towboat Markets of the Mississippi River Navigation System
› 5-year supply and demand outlook
› Covered and open, and tank fleets
› Towboat analysis
› Discussion on drivers impacting supply and demand
› IEG Vantage fundamental analytics
› www.bargefleet.com
Questions?