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Maritime Transportation Resource Bank

An Undergraduate Honors College Thesis

in the

Department of Industrial Engineering

College of Engineering

University of Arkansas

Fayetteville, AR

by

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This thesis is approved.

Thesis advisor:



Thesis committee:



ABSTRACT

The maritime transportation system is an important component of the United States' (U.S.) economy, from commerce activities to freight movement to disaster' relief. The annual impact of the maritime transportation system on the U.S. national economy is reported as approximately \$649 billion of the total U.S. gross domestic product (U.S. Department of Transportation Maritime Administration, n.d.). This impact is attributed to activities related to the movement of goods and people. Indeed, the maritime transportation system plays an important role in international trade by transporting goods such as coal and farm products, which are common commodities for foreign and domestic commerce (Institute for Water Resources, 2012). The maritime transportation system is governed by multiple agencies including the Maritime Administration (MARAD), U.S. Army of Engineers (USACE), and U.S. Coast Guard. Because of the many stakeholders, there are many disjoint sources of data related to maritime transportation. In order to support efficient information gathering about the maritime transportation system, we have developed the Maritime Transportation Resource Bank, a reliable and condensed resource bank that identifies information and data sources related to maritime transportation, as a means to facilitate resource identification and advance knowledge about the system.

1. INTRODUCTION

The Maritime Transportation Resource Bank was compiled with the purpose of contributing to the maritime research and practitioner communities. The development of the resource bank involved an extensive process of locating, screening, and assessing information sources and assessing the source content. We also conducted a classification process by which information sources were grouped according to their relationship to the maritime transportation system. We aim to contribute to the research and educational aspects of maritime transportation, as means to improve the quality of information gathering and dissemination to the field. The anticipated users of the Maritime Transportation Resource Bank are all individuals interested in maritime transportation information, especially in data statistics and particular subject areas within maritime transportation.

1.1. Research Motivation

The Maritime Transportation Resource Bank is inspired by the vision of MarTREC, the Maritime Transportation Research and Education Center, “to be recognized as the Nation’s premier source for expertise on maritime and multimodal transportation research and education, (Maritime Transportation Research and Education Center, 2015).” Enabling research in this area is important because the maritime transportation system is critical to the global, national, and local economies as well as supportive to security and national aid. Likewise, maritime transportation is key to international trade as it provides a larger capacity for carrying goods for large distances. Maritime transportation remains one of the cheapest options for large freight shipments as the preferred option for transporting bulk commodities across continents. Similarly, the mode leaves an environmental footprint that is less harmful per ton-mile transported than to other transportation modes.

The maritime transportation system is comprised of components that enable it to function all over the world. Ports, locks, dams, levees, and canals all contribute to the impact of maritime transportation on the global economy. This maritime infrastructure is made possible through the efforts of organizations such as the USACE and the Panama Canal Authority that are charged with the development, operation, and care of maritime infrastructure.

From a global standpoint, maritime transportation transports approximately 80% of world trade (United Nations Conference on Trade and Development, 2013). This is made possible by the activities of ten key industry players who transport more than 50% of the freight (The Global Facilitation Partnership for Transportation and Trade, n.d.). With respect to developing countries, the maritime transportation system can be considered a major facilitator of trade. From a domestic standpoint, the U.S. maritime transportation system has a long history of benefiting the U.S. economy. This is largely due to the fact that most exported goods are shipped by the maritime mode. Annually, the impact of the maritime transportation system on the U.S. economy is approximately \$649 billion of the U.S. GDP yearly (U.S. Department of Transportation Maritime Administration, n.d.). Although there are many factors affecting U.S. maritime transportation today such as larger vessel capacity, and measures for better fuel efficiency, it continues to have

competitive advantages over other modes of transportation (United Nations Trade and Development Board and Trade and Development Commission, 2013).

1.2. Research Objective

There are numerous online sources that are related to maritime transportation, but not all can be described as reliable or informative. In addition, there are many secondary websites that contain information obtained from primary data sources. Therefore, a resource bank that is reliable and efficient when searching for information will be of value to the maritime transportation community. The motivation behind development of the Maritime Transportation Resource Bank is the impact a database of this kind can have on ongoing and future research and development projects. This goes hand in hand with the expectation that the Maritime Transportation Resource Bank will provide efficient access to information and data about the maritime transportation system to enable researchers and other stakeholders.

1.3. Research Contribution

The Maritime Transportation Resource Bank will be housed on the Maritime Transportation Research and Education Center website, martrec.uark.edu. It will be available to anyone interested in the maritime field and will hopefully become the premier source for maritime transportation information. The sources and web links compiled in the resource bank must be reviewed periodically and checked for current relevancy. Likewise, the Maritime Transportation Resource Bank will continue to incorporate new and appropriate sources to the database to ensure continued access to quality information.

2. METHODOLOGY

Sources were compiled through an extensive search within major databases in order to identify maritime transportation resources. The scope of the search involved any possible source that was related to maritime transportation. The search began with a study of extensive literature reviews previously conducted by research teams at the University of Arkansas. The sources provided from this review were analyzed in detail in order to identify relevant information sources related to maritime transportation.

A search procedure was developed to identify related information sources. Key words such as “ports,” “vessels,” “maritime transportation,” and “freight” were essential for locating information sources. The search evolved into an overview of the websites’ content and their contribution to the field. This was crucial in the process of defining the overall relationship of the source to the various topics of maritime transportation compiled in the resource bank.

While analyzing sources, some common themes became noticeable and contributed to the development of a method for further search and classification of information sources. For instance, while a source may initially appear to be independent, there is probability that it is connected to a primary source. Therefore, an understanding of sources’ interconnections is essential for ultimately identifying the most useful sources. This particularity was common in websites that were government supported. Governmental websites tended to compile enormous amounts of data related to maritime transportation, and thus the search became extensive and time consuming to determine what was really valuable to the resource bank. Likewise, other patterns appeared such as priority of certain maritime topics over others presented in the source websites.

After an observed repetition of patterns, a standardized method became useful for narrowing our search. The key aspects of the method are listed below:

- Validity of the source,
- Relevance to maritime transportation,
- Relation of the source to other sources and resource bank topics, and

- Type of information provided; figures, tables, interactive maps, reports, etc.

The validity of the source was based on what entity developed the website and/or actively supports its functionality. Websites supported by government entities were considered reliable. Sources that were independent from government institutions were checked for erroneous or misleading information. After reliable sources were separated from unreliable sources, reliable sources were further tested for maritime transportation relevancy. Relevancy was examined by examining the importance of the maritime transportation topics over other matters addressed by the source. Likewise, this step involved the review of a source's specific topics and its possible ramifications within the maritime mode. Furthermore, these ramifications often were related to the relationships of the source with previously identified sources and were useful in the forming of the resource bank categories.

Lastly, the search method was useful for screening sources that were internationally supported. Nevertheless, the review of international sources displayed higher complexity because of different terminology and trends in particular regions of interest. Once valuable information was identified and links were reviewed (i.e. tables, maps, and figures) their contents were associated to the Maritime Transportation Resource Bank categories.

After all candidate sources were compiled, each source contribution to the field was divided into "highly," "likely," and "unlikely." Among sources that were considered highly related to the field were sources that covered topics in the maritime transportation vocabulary specifically. Topics ranged from vessel types, principal ports, and river locks all the way to commodity and tonnage transported. Those sources that had a relationship considered "likely" were linked with content involving other modes and intermodal transportation. Finally, those sources which relationships were considered "unlikely" were almost entirely focused on other transportation modes or related to topics that applied to all such as hazards. For the purpose of covering material highly related to maritime transportation, the sources with content solely considered "likely" and "unlikely" were removed from the resource bank.

After the identification of sources that were truly important to the scope of the Maritime Transportation Resource Bank, different categories were defined with the purpose of easing the process of source classification as well as that for the user interface with the resource bank. Different categories considered ranged from “commodities,” “locks,” “ports,” “routes,” etc. The identification process by which a source was assigned to a particular category was based on the background of the source and the amount of data the resource bank pulled from it. Sources were incorporated to the resource bank within the category they belonged to. Lastly, this method was also applied more generally to global topics such as maritime transportation outside U.S. borders and intermodal transportation.

3. MARITIME TRANSPORTATION RESOURCE BANK

The Maritime Transportation Resource Bank is divided into two main sections with sub-sections or categories under each main section. This layout was inspired by the Bureau of Transportation Statistics database (United States Department of Transportation, 2015). The two main sections are Data & Statistics and Subject Areas. The sub-sections/categories for each of the main sections are presented in Figure 1.1. Every sub-section contains online sources that contain information that is closely associated with the sub-section. Sources in the Maritime Transportation Resource Bank may appear under multiple sub-sections. For an extended view of the Maritime Transportation Resource Bank, refer to Figure A1 and Table A1.1 in the Appendix. In addition to the Maritime Transportation Resource Bank classification, there is a brief description of each source's content and websites' links in Table A1.2 and A1.2 respectively.

Figure 1.1 Summary of Results
DATA & STATISTICS
By Mode / Maritime
Maritime: Waterway indicators
By Region
Regional
Global
Maps / Graphs
Research
Reports
SUBJECT AREAS
Safety / Security
Commodity flow
Revenue
Ports
Locks
Vessels

4. CONCLUSIONS

The contributions of this honors thesis will benefit maritime transportation system stakeholders. This research represents the first known comprehensive effort to reduce the extensive gap between maritime transportation information sources. The Maritime Transportation Resource Bank will likely become the base starting point for future research and development efforts in maritime transportation. Similarly, it may serve as a standard for other resource banks.

REFERENCES

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- U.S. Department of Transportation Maritime Administration. *Marine Transportation System (MTS)*. Retrieved 16 April 2015, from http://www.marad.dot.gov/ports_landing_page/marine_transportation_system/MTS.htm
- United Nations Conference on Trade and Development. (2013). *Review of Maritime Transport (Series)*. Retrieved 16 April 2015, from [http://unctad.org/en/pages/publications/Review-of-Maritime-Transport-\(Series\).aspx](http://unctad.org/en/pages/publications/Review-of-Maritime-Transport-(Series).aspx)
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- United States Department of Transportation,. (2015). *Bureau of Transportation Statistics*. Retrieved 18 April 2015, from <http://www.rita.dot.gov/bts/home>

APPENDIX

Figure A.1 Maritime Transportation Research Bank

DATA AND STATISTICS

By Mode / Maritime

Maritime: Waterway indicators

- Navigation Data Center
- US Foreign Waterborne Transportation Statistics Program
- Navigation Data Center Internal U.S. Waterway Monthly Indicators Trends in commodity flows
- Waterborne Commerce Statistics Center
- 2011 U.S. Water Transportation Statistical Snapshot
- Maritime Transport
- Rita: TranStats
- Maritime Statistics
- European Commission Eurostat

By Region

Regional

- Navigation Data Center WCUS Part 2 Waterways and Harbors, Gulf Coast, Mississippi River System and Antilles
- Commodity Flow Survey at Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics
- USACE 2001 Upper Mississippi River Navigation Charts
- Saint Lawrence Seaway Tonnage Information
- Saint Lawrence Seaway Traffic Reports
- Arkansas Waterways Commission

Global

- Data Center
- European Commission Eurostat
- World Container Traffic Data
- The Panama Canal Authority

Maps / Graphs

- The National Strategy
- Waterborne Commerce Statistics Center
- USACE Hydrographic Surveys-Conditions For the Mississippi River
- USACE 2001 Upper Mississippi River Navigation Charts
- Water Watch
- NOAA NESDIS NCDC
- Coverage Plots
- Primary Mission Areas
- Online Chart Viewer

- Data Portal
- PORTS® (Physical Oceanographic Real-Time System)
- Arkansas Waterways Commission
- United States Transportation Facts and Figures

Research

- USDOT Research Hub
- The National Strategy
- Infographic - Maritime Situational Awareness
- Primary Mission Areas
- TRIS Database of Maritime Transportation
- PORTS® (Physical Oceanographic Real-Time System)

Reports

- Navigation Data Center The US Waterway System Facts
- Maritime Emergency Preparedness and Response
- Navigation Data Center Vessel Characteristics
- Navigation Data Center WCUS Part 2 Waterways and Harbors, Gulf Coast, Mississippi River System and Antilles
- 2011 U.S. Water Transportation Statistical Snapshot
- USACE: Lock Performance Monitoring System
- Maritime Transport
- Saint Lawrence Seaway Traffic Reports
- United Nations Conference on Trade and Development

SUBJECT AREAS

Safety / Security

- National Transportation Statistics
- BTS Maritime Program
- Maritime Emergency Preparedness and Response
- A Modal Comparison of Freight Transportation Effects on the General Public
- 2011 U.S. Water Transportation Statistical Snapshot
- Maritime Transport
- United Nations Conference on Trade and Development Waterborne

Freight commodity flow

- National Transportation Statistics
- BTS Publications
- BTS Maritime Program
- Navigation Data Center
- Navigation Data Center U.S. Waterborne Container Traffic by Port/Waterway in 2012
- Navigation Data Center The US Waterway System Facts
- US Foreign Waterborne Transportation Statistics Program
- Navigation Data Center Internal U.S. Waterway Monthly Indicators Trends in commodity flows

- Navigation Data Center WCUS Part 2 Waterways and Harbors, Gulf Coast, Mississippi River System and Antilles
- Waterborne Commerce Statistics Center
- Commodity Flow Survey at Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics
- 2011 U.S. Water Transportation Statistical Snapshot
- USACE: Lock Performance Monitoring System
- Maritime Transport
- Rita: TranStats
- Saint Lawrence Seaway Traffic Reports
- Maritime Statistics
- Data Center
- United States Transportation Facts and Figures
- European Commission Eurostat
- United Nations Conference on Trade and Development
- The Panama Canal Authority

Revenue

- National Transportation Statistics
- The National Strategy
- A Modal Comparison of Freight Transportation Effects on the General Public
- Rita: TranStats
- Data Center
- European Commission Eurostat
- The Panama Canal Authority

Ports

- BTS Maritime Program
- The National Strategy
- Navigation Data Center
- Navigation Data Center U.S. Waterborne Container Traffic by Port/Waterway in 2012
- United States Waterway Data
- Navigation Data Center The US Waterway System Facts
- Marine Casualty and Pollution Investigations
- Waterborne Commerce Statistics Center
- Maritime Statistics
- European Commission Eurostat
- United Nations Conference on Trade and Development
- World Container Traffic Data Vessels

Locks

- Navigation Data Center U.S. Waterborne Container Traffic by Port/Waterway in 2012
- United States Waterway Data
- Navigation Data Center The US Waterway System Facts
- USACE: Lock Performance Monitoring System

- Rita: TranStats

Vessels

- BTS Maritime Program
- United States Waterway Data
- Navigation Data Center The US Waterway System Facts
- Navigation Data Center Vessel Characteristics
- Commodity Flow Survey at Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics
- 2011 U.S. Water Transportation Statistical Snapshot
- USACE: Lock Performance Monitoring System
- Maritime Statistics
- European Commission Eurostat
- United Nations Conference on Trade and Development
- The Panama Canal Authority

Table A 1.1 Maritime Transportation Research Bank: Data Source Name and Category

Name	Safety	Security	Waterborne	Freight/commodity flow	Revenue	Maps	Reports	Regional	International	Mode specific	Research	Ports	Vessels	Locks	Waterways indicators
National Transportation Statistics	Y	Y	Y	Y	Y										
USDOT Research Hub											Y				
BTS Publications				Y				Y	Y	Y					
BTS Maritime Program	Y			Y								Y	Y		
The National Strategy		Y	Y		Y	Y					Y	Y			
Infographic - Maritime Situational Awareness											Y				
Waterborne Commerce Statistics Center						Y									
Navigation Data Center				Y								Y			Y
Navigation Data Center Schedule K: Classification of Foreign Ports by Geographic Trade Area and Country.									Y						
Navigation Data Center U.S. Waterborne Container Traffic by Port/Waterway in 2012				Y				Y	Y			Y		Y	

United States Waterway Data							Y	Y			Y	Y	Y	
Navigation Data Center The US Waterway System Facts				Y			Y	Y	Y			Y	Y	Y
US Foreign Waterborne Transportation Statistics Program				Y										Y
Navigation Data Center Internal U.S. Waterway Monthly Indicators Trends in commodity flows				Y										Y
Maritime Emergency Preparedness and Response	Y	Y					Y							
Navigation Data Center Vessel Characteristics							Y					Y		
Marine Casualty and Pollution Investigations											Y			
Navigation Data Center WCUS Part 2 Waterways and Harbors, Gulf Coast, Mississippi River System and Antilles				Y	Y		Y	Y	Y					
Waterborne Commerce Statistics Center				Y	Y			Y	Y			Y		Y
Commodity Flow Survey at Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics					Y			Y	Y				Y	

A Modal Comparison of Freight Transportation Effects on the General Public	Y				Y					Y					
USACE Hydrographic Surveys-Conditions For the Mississippi River						Y									
USACE 2001 Upper Mississippi River Navigation Charts						Y		Y							
2011 U.S. Water Transportation Statistical Snapshot	Y		Y	Y			Y			Y			Y		Y
Water Watch						Y		Y							
NOAA NESDIS NCDC						Y		Y							
USACE: Lock Performance Monitoring System				Y			Y						Y	Y	
Coverage Plots						Y		Y							
Primary Mission Areas						Y		Y			Y				
Maritime Transport	Y	Y	Y	Y			Y								Y
TRIS Database of Maritime Transportation											Y				
Rita: TranStats	Y			Y	Y									Y	Y
Saint Lawrence Seaway Tonnage Information								Y							
Saint Lawrence Seaway Traffic Reports				Y			Y	Y							
Maritime Statistics			Y	Y								Y	Y		Y
Online Chart Viewer						Y									
Historical Maps and Charts															
Data Portal						Y									

PORTS® (Physical Oceanographic Real-Time System)						Y					Y					
Data Center			Y	Y	Y			Y	Y							
Arkansas Waterways Commission			Y			Y		Y								
United States Transportation Facts and Figures				Y		Y		Y								
European Commission Eurostat			Y	Y	Y				Y	Y		Y	Y			Y
United Nations Conference on Trade and Development	Y		Y	Y			Y					Y	Y			Y
World Container Traffic Data									Y			Y				Y
The Panama Canal Authority				Y	Y				Y				Y			Y

Table A 1.2 Maritime Transportation Research Bank: Data Source Name and Description	
Name	Description
National Transportation Statistics	Source that contains information regarding all modes of transportation in terms of safety, security, performance, economic and environmental measures.
USDOT Research Hub	Database that contains the latest research, development, and projects in maritime transportation sponsored by government agencies and other organizations.
BTS Publications	Publications by the Bureau of Transportation and Statistics. Data related to passengers, freight, economics, international and general topics of transportation.
BTS Maritime Program	Provides information related to US Maritime programs.
The National Strategy	Information on Federal investments on the marine transportation system.

Infographic - Maritime Situational Awareness	Overview of maritime situation around the globe.
Waterborne Commerce Statistics Center	Geographic area covered by waterborne commerce of the United States. The source provides detailed movements data of commodities and vessels.
Navigation Data Center	Information on commodity movements, containers' traffic, and traffic on main U.S. Ports.
Navigation Data Center Schedule K: Classification of Foreign Ports by Geographic Trade Area and Country.	Port geographic classification by trade, area and country.
Navigation Data Center U.S. Waterborne Container Traffic by Port/Waterway in 2012	Port/waterway traffic in US ports. Domestic and foreign values in TEU.
United States Waterway Data	Data center on waterways in the U.S. from commerce to locks, and accidents.
Navigation Data Center The US Waterway System Facts	General Information about the US Waterway System ordered by year.
US Foreign Waterborne Transportation Statistics Program	Monthly preliminary cargo summary.
Navigation Data Center Internal U.S. Waterway Monthly Indicators Trends in commodity flows	Monthly commodity indicators.
Maritime Emergency Preparedness and Response	Develops plans for emergency response and supports military mobilizations. It also maintains resource evaluation data related to emergencies.
Navigation Data Center Vessel Characteristics	Yearly information on operating vessels: flag, name, company, and operator.
Marine Casualty and Pollution Investigations	Group of files that contain details on marine and pollution incidents' causes and factors such as vessel or facility type, pollutant, location, date and suggested solutions. The files also include information on commercial and recreational vessels documented under the U.S. laws and the U.S. Coast Guard. Contains data related to oil spills percentages throughout the years.
Navigation Data Center WCUS Part 2 Waterways and Harbors, Gulf Coast, Mississippi River System and Antilles	Relevant and useful information related to waterways and harbors, Gulf Coast, Mississippi River System and Antilles

Waterborne Commerce Statistics Center	Statistics on the waterborne commerce moved in the U.S.
Commodity Flow Survey at Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics	Data on the type, origin, destination, value, weight, mode of transport, distance shipped, and ton-miles of commodities shipped.
A Modal Comparison of Freight Transportation Effects on the General Public	The document provides a comparison of barge against rail and truck freight transportation in terms of energy, efficiency, cargo capacity, congestion, emissions, and safety and infrastructure impacts.
USACE Hydrographic Surveys-Conditions For the Mississippi River	Survey areas of the Mississippi river including all locks. Also, the website provides hydrographic surveys for Coralville, Red Rock, and Saylorville Reservoirs and Illinois Waterways.
USACE 2001 Upper Mississippi River Navigation Charts	Navigation charts for the Upper Mississippi River area per city, river miles, and facilities utilities.
2011 U.S. Water Transportation Statistical Snapshot	Information related to inland waterway transportation
Water Watch	The source contains information related to current stream flow, flood, drought and past flow/runoff events in the United States. The website has a toolkit that enables the user to search for specific information which is presented by maps.
NOAA NESDIS NCDC	Source that provides a customized tool for climatic circumstances during a specific period of time. The data is sorted by nation, region, state, and division.
USACE: Lock Performance Monitoring System	Contains locks and vessel specific information such as Vessel's, Lock Queue Report, Lock Status Report, Tonnage Report, Data Web Services River at a Glance.
Coverage Plots	The plots for ground conductivity, transmitter output power, and land topography using Millington's method.
Primary Mission Areas	Local notice to mariners and data related to broadcasts and GPS signals for maritime transportation purposes. Coast guard district boundaries.
Maritime Transport	Website that provides international statistics related to maritime transportation, safety, and security of shipments.

TRIS Database of Maritime Transportation	Database that contains research on transportation matters.
Rita: TranStats	Maritime data library.
Saint Lawrence Seaway Tonnage Information	Annual tonnage data for the Lower Saint Lawrence River and the Welland Canal are available by type of cargo -- iron ore, coal, grain, and other cargo.
Saint Lawrence Seaway Traffic Reports	Yearly traffic reports for the Saint Lawrence Seaway.
Maritime Statistics	Yearly reports and statistics on vessels, ports, and trade.
Online Chart Viewer	Nautical charts
Historical Maps and Charts	U.S. government's historical surveying and mapping.
Data Portal	Real time data coastal data map.
PORTS® (Physical Oceanographic Real-Time System)	Integration of real-time environmental observations, forecasts, and other geospatial information.
Data Center	Data base that contains information regarding internal trade, economic trends, foreign direct investments, external financial resources, population and labor force, commodities, and maritime transportation.
Arkansas Waterways Commission	Website that provides authorities and facilities' names, links and contact information for information related to rivers, terminals, and intermodal transportation in the state of Arkansas. The source also contains maps for U.S. inland waterways system, products shipped from Arkansas and Arkansas' ports.
United States Transportation Facts and Figures	Website that provides state information regarding freight volumes and values. Once the waterborne shipments option is selected, there are interactive forms of displaying the information: maps, bar, pie and scatter charts.
European Commission Eurostat	Extensive database that is fulfilled with tables related to the movement of passengers, goods and vessel traffic. It also covers short sea shipping, regional statistics, and annual reports. The information is provided by the type of vessel, by country, type of cargo, type of traffic, port, loading status, route, among others.

United Nations Conference on Trade and Development	Yearly report on maritime transportation developments in ports, safety, and freight movements.
World Container Traffic Data	Rank of ports by region.
The Panama Canal Authority	Information on traffic at the Panama Canal by vessel, commodity, flag, origin, and destination. Tariffs. Notice of Shipping. Information Systems. Tugboat Fleet. Tide Tables.

Table A 1.3 Maritime Transportation Research Bank: Data Source Name and Website Link	
Name	Link
National Transportation Statistics	http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/index.html
USDOT Research Hub	http://ntlsearch.bts.gov/researchhub/search.do?q=&size=50&psize=50&p=&mode=MARAD&pid=&range=&stgrpid=&managed=&manageableMode=&sb=ti_sort&so=asc
BTS Publications	http://www.rita.dot.gov/bts/bts_publications
BTS Maritime Program	http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/subject_areas/maritime_program/index.html
The National Strategy	http://www.cmts.gov/Maps/Index.aspx
Infographic - Maritime Situational Awareness	http://www.volpe.dot.gov/content/infographic-maritime-situational-awareness
Waterborne Commerce Statistics Center	http://www.iwr.usace.army.mil/About/TechnicalCenters/WCSCWaterborneCommerceStatisticsCenter.aspx
Navigation Data Center	http://www.navigationdatacenter.us/wcsc/wcsc.htm
Navigation Data Center Schedule K: Classification of Foreign Ports by Geographic Trade Area and Country.	http://www.navigationdatacenter.us/wcsc/scheduleK/schedulek.htm
Navigation Data Center U.S. Waterborne Container Traffic by Port/Waterway in 2012	http://www.navigationdatacenter.us/wcsc/by_portnames12.html
United States Waterway Data	http://www.navigationdatacenter.us/data/data1.htm

Navigation Data Center The US Waterway System Facts	http://www.navigationdatacenter.us/factcard/factcard.htm
US Foreign Waterborne Transportation Statistics Program	http://www.navigationdatacenter.us/usforeign/index.htm
Navigation Data Center Internal U.S. Waterway Monthly Indicators Trends in commodity flows	http://www.navigationdatacenter.us/wcsc/monthlyindicators.htm
Maritime Emergency Preparedness and Response	http://www.marad.dot.gov/ports_landing_page/port_emergency/maritime_emergency_parednessandresponse.htm
Navigation Data Center Vessel Characteristics	http://www.navigationdatacenter.us/veslchar/veslchar.htm
Marine Casualty and Pollution Investigations	https://homeport.uscg.mil/mycg/portal/ep/programView.do?channelId=-18374&programId=91343&programPage=%2Fep%2Fprogram%2Feditorial.jsp&pageTypeId=13489
Navigation Data Center WCUS Part 2 Waterways and Harbors, Gulf Coast, Mississippi River System and Antilles	http://www.navigationdatacenter.us/wcsc/pdf/wcusmvgc09.pdf
Waterborne Commerce Statistics Center	http://www.navigationdatacenter.us/wcsc/webpub12/webpubpart-2.htm
Commodity Flow Survey at Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics	http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/commodity_flow_survey/index.html
A Modal Comparison of Freight Transportation Effects on the General Public	http://www.marad.dot.gov/documents/Phase_II_Report_Final_121907.pdf
USACE Hydrographic Surveys-Conditions For the Mississippi River	http://www2.mvr.usace.army.mil/odrsurvey/Projects/Projects.cfm?PROJ_CODE=MISSRVR
USACE 2001 Upper Mississippi River Navigation Charts	http://www2.mvr.usace.army.mil/NIC2/mrcharts_omni.cfm?v_frame=0&index=1

2011 U.S. Water Transportation Statistical Snapshot	http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/freight_in_america/index.html
Water Watch	http://waterwatch.usgs.gov/index.php?id=ww
NOAA NESDIS NCDC	http://www7.ncdc.noaa.gov/CDO/CDODivisionalSelect.jsp
USACE: Lock Performance Monitoring System	http://corpslocks.usace.army.mil/lpwb/f?p=121:1:813456388395581:::
Coverage Plots	http://www.navcen.uscg.gov/?pageName=dgpsMain
Primary Mission Areas	http://www.navcen.uscg.gov/?pageName=lnmMain
Maritime Transport	http://www.imo.org/KnowledgeCentre/ShipsAndShippingFactsAndFigures/Statisticalresources/MaritimeTransport/Pages/default.aspx
TRIS Database of Maritime Transportation	http://trid.trb.org/results.aspx?q=&subject=Marine+Transportation&datein=2years#
Rita: TranStats	http://www.transtats.bts.gov/databases.asp?Mode_ID=2&Mode_Desc=Maritime&Subject_ID2=0
Saint Lawrence Seaway Tonnage Information	http://www.seaway.dot.gov
Saint Lawrence Seaway Traffic Reports	http://www.greatlakes-seaway.com/en/seaway/facts/traffic/index.html
Maritime Statistics	http://www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm
Online Chart Viewer	http://www.nauticalcharts.noaa.gov/pdfcharts/
Historical Maps and Charts	http://www.nauticalcharts.noaa.gov/csdl/ctp/abstract.htm
Data Portal	http://nowcoast.noaa.gov
PORTS® (Physical Oceanographic Real-Time System)	http://tidesandcurrents.noaa.gov/ports.html
Data Center	http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx
Arkansas Waterways Commission	http://waterways.arkansas.gov/education/Pages/whyWaterways.aspx
United States Transportation Facts and Figures	http://gis.rita.dot.gov/StateFacts/
European Commission Eurostat	http://ec.europa.eu/eurostat/data/database
United Nations Conference on Trade and Development	http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=753

World Container Traffic Data	http://www.iaphworldports.org/LinkClick.aspx?fileticket=PMewveDCUUG%3d&tabid=4879
The Panama Canal Authority	http://www.pancanal.com/eng/op/index.html