Collaborative Planning Opportunities for our Nation's Inland Waterways

M40 - Identifying New Planning Opportunities

Fort Smith, Arkansas

July 28, 2016

Presenter:
Patrick J. Donovan
Chief, PCXIN-RED

US Army Corps of Engineers
BUILDING STRONG®

Topics

- Background
  - PCXIN-RED – Who are we?
  - Collaborative Planning Opportunities
  - State Profiles – Waterborne Commerce
    - Arkansas
    - Oklahoma

US Army Corps of Engineers
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"The Accidental Superpower: The Next Generation of American Preeminence and the Coming Global Disorder"

- *Peter Zeihan's "The Accidental Superpower" begins with geography, pointing out that the United States is the world's largest consumer market for a reason: its rivers. Transporting goods by water is 12 times cheaper than by land (which is why civilizations have always flourished around rivers). And the United States, Zeihan calculates, has more navigable waterways — 17,600 miles' worth — than the rest of the world. By comparison, he notes, China and Germany each have about 2,000 miles. And all of the Arab world has 120 miles.*

Background
PCXIN-RED - History

- Two ORD Navigation Centers in FY 82
  - ► LRH - System Models/Data & LRP
  - ► LRL - Capacity/Environmental & LRN
- FY 92 - One Navigation Center in LRH
  - ► System Funding Plan Started
- FY 99 - LRD Navigation Planning Center
  - ► Great Lakes and the Ohio River Systems
- August 2003 - Planning Center of Expertise for Inland Navigation (PCXIN) included the Great Lakes (1 of 7 Planning Centers)
- September 2013 – PCXIN and Risk-Informed Economics Division named and realignment

Background
PCXIN-RED Area of Concern

Inland Waterways

- **5 Corps MSCs** with Inland Navigation projects
- 12,000 miles; 9' – 14' draft
- 240 Lock Chambers
- 630 million tons annually; ~50% coal & petroleum
- Includes Great Lakes

U.S. Inland Waterway System

Applying Corps Collaborative Planning Practices

- EC 1105-2-409 "Planning in a Collaborative Environment"
  - Paragraph 6.b. – "Collaborative Planning also includes Corps participation as a team member in other Federal, state or local agencies planning activities where there may be no expectation of construction or other work by the Corps as a result. Participation in other public planning will take advantage of the Corps special expertise in water resources. By bringing together the expertise and programs of all appropriate Federal, *state and local agencies (presenter added),* collaborative planning will solve problems at the proper scale, integrate solutions across purposes and business programs, and leverage Federal and other's funds."

- "A Framework for Action"……Marine Transportation System in 2008:
  - *"Collaborate* with State, local, and private entities to ensure environmental and National Environmental Policy Act (NEPA) compliance, and to plan for land use in and near ports;"
  - "Work *collaboratively* to foster the collection of data and information that will underpin environmental impact assessments and decision-making in MTS planning and development;"

Bringing Corps Capabilities to the Table

- SMART planning processes – planning charettes, risk-informed planning, single-phase planning approach.
- Navigation systems planning – future-oriented modeling capabilities
- Commodity movement data collection and analysis
- Site planning, infrastructure design/engineering and cost estimating
- HTRW analysis (brownfields reuse as public ports)
- NED and RED economic analyses
- NEPA assessment and compliance
- Historic and archeological resources site investigations
- Floodplain hazards analysis – port and terminal development
- Regulatory permit expertise (Section 10 & Section 404).
- Access to regional/national District resources, laboratories, Institutes, Centers of Expertise and consulting firms
- Existing relationships with natural resources agencies and shippers
- Growing research and modeling capability in climate change effects

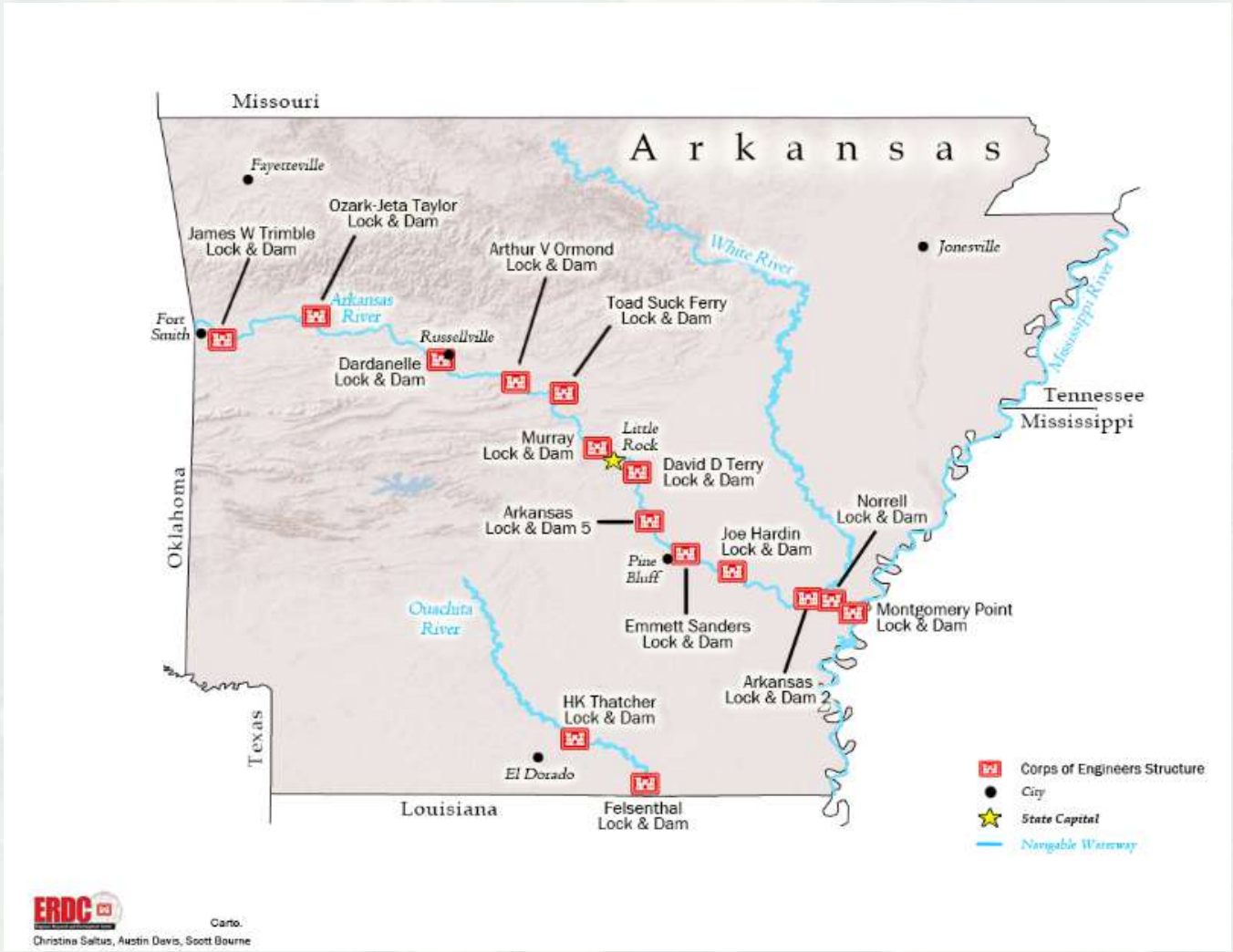
LRD Public Port
Collaborative Planning Initiatives

- Six specifically authorized and funded port master plan studies - LRH
  - ► Jackson County Maritime Centre, Erickson/Wood County Port, Putnam County, Kanawha Valley Port, Weirton Port, and Cabell/Wayne Port
- ODOT Ohio Inland Ports Reconnaissance Study – LRH (Spec Authorized)
- ODOT, ODOD & ORDC “Nexus Ohio” – LRH (Spec Authorized)
- Port of Huntington Tri-State expansion study – LRH (Spec Authorized)
- Owensboro, KY Public Port Master Plan – LRL (Section 22 PAS)
- Port of Cincinnati Expansion Study – LRL (Section 22 PAS)
- Tennessee DOT Intermodal Ports Study – LRN (Section 22 PAS)

National Freight Gateways

Inland Waterway System Cargoes

- Inland waterway primarily used for moving bulk and break-bulk commodities regionally and nationally by barge/tow boat configuration
  - Coal
  - Aggregates
  - Petroleum
  - Chemicals
  - Steel products
  - Minerals and ores
  - Fertilizer
  - Grains
  - Machinery
  - Cement
  - Wood Products
- And some intermodal cargoes at selected locations – Columbia River and lower Mississippi River.


Missouri
Arkansas
Fayetteville
Ozark-Jeta Taylor Lock & Dam
James W Trimble Lock & Dam
Arthur V Ormond Lock & Dam
White River
Jonesville
Arkansas River
Fort Smith
Russellville
Toad Suck Ferry Lock & Dam
Dardanelle Lock & Dam
Mississippi River
Tennessee
Mississippi
Little Rock
Murray Lock & Dam
David D Terry Lock & Dam
Oklahoma
Arkansas Lock & Dam 5
Norrell Lock & Dam
Joe Hardin Lock & Dam
Pine Bluff
Ouachita River
Emmett Sanders Lock & Dam
Montgomery Point Lock & Dam
Arkansas Lock & Dam 2
HK Thatcher Lock & Dam
Texas
El Dorado
Louisiana
Felsenthal Lock & Dam
Corps of Engineers Structure
City
State Capital
Navigable Waterway
ERDC
Carto.
Christina Saltus, Austin Davis, Scott Bourne

Arkansas

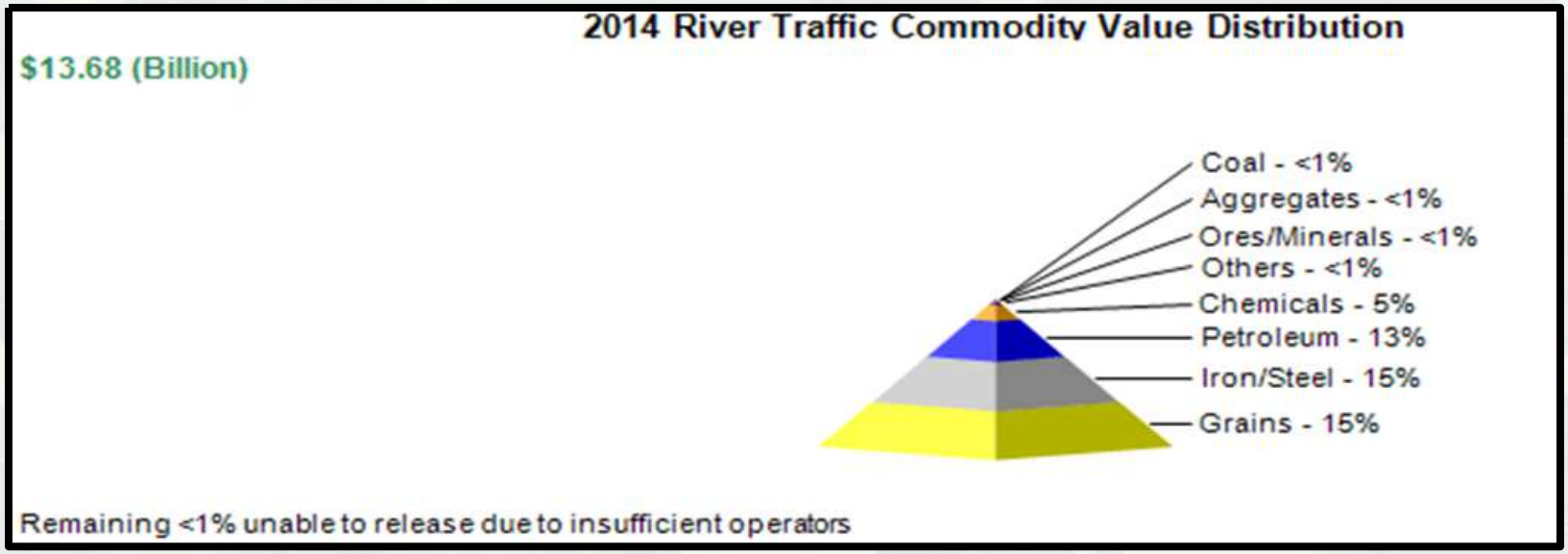
2014 State Quick Facts (Tons in Millions)	
Tons Shipped -	8.4
Tons Received -	7.8
Tons Shipped Within State -	2.4
Total Commerical Docks -	105
Total Value (billions)-	$6.84
Total Domestic Tons -	18.5
Total Import Tons -	0.0
Total Export Tons -	0.0
Total Tons -	18.5

Source: Waterborne Commerce Statistics, 2012 NDSU Commodity Valuation Analysis
(Commodity dollar values are not calculated for foreign movements)

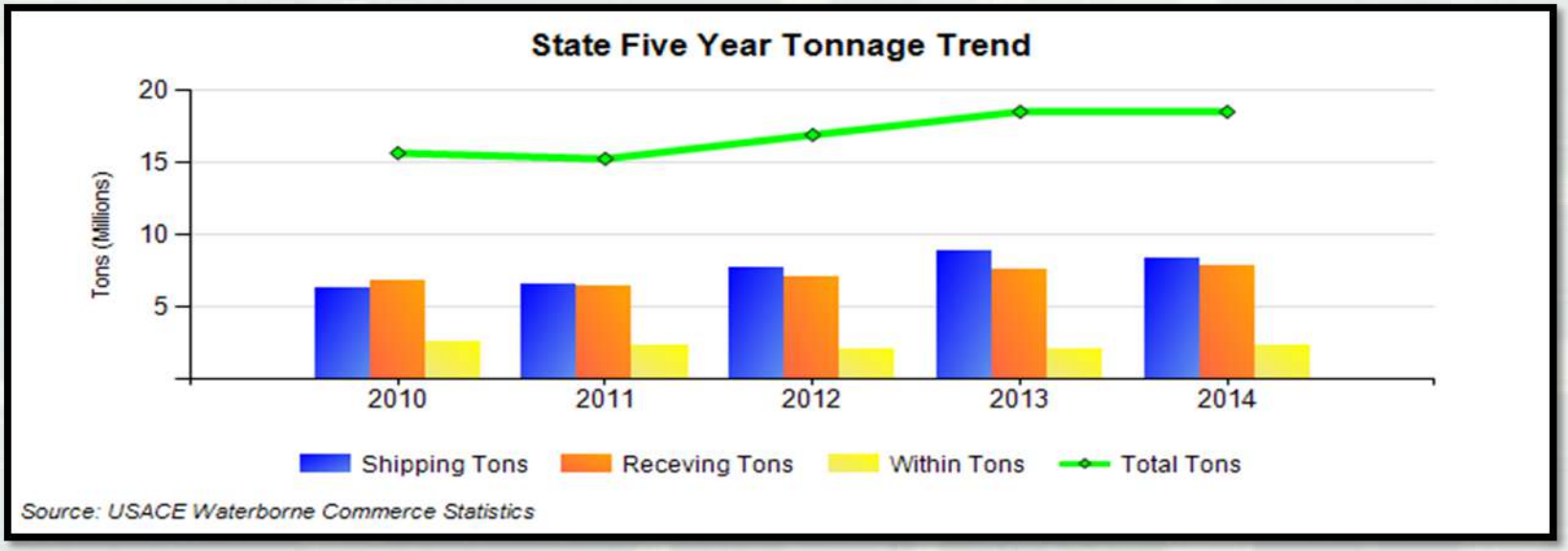
Arkansas

Commodity Value Distribution Charts by Waterway Type

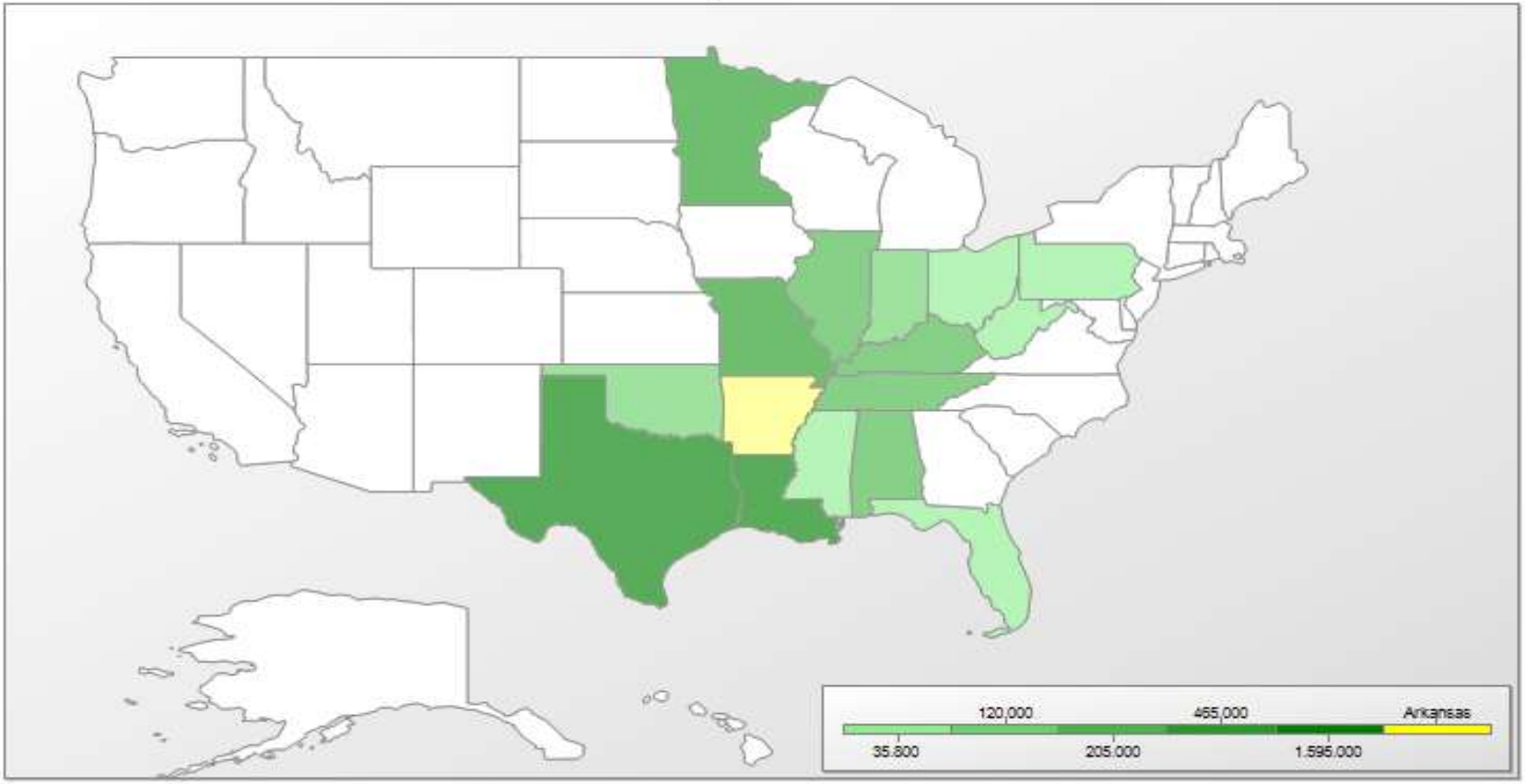
Source: Waterborne Commerce Statistics, 2012 NDSU Commodity Valuation Analysis (Commodity Values Not Calculated for Foreign Movments)



Arkansas


State Five Year Tonnage Trend
Tons (Millions)
20
15
10
5
2010
2011
2012
2013
2014
Shipping Tons
Receving Tons
Within Tons
Total Tons
Source: USACE Waterborne Commerce Statistics

2014 States Sending Commodities to Arkansas

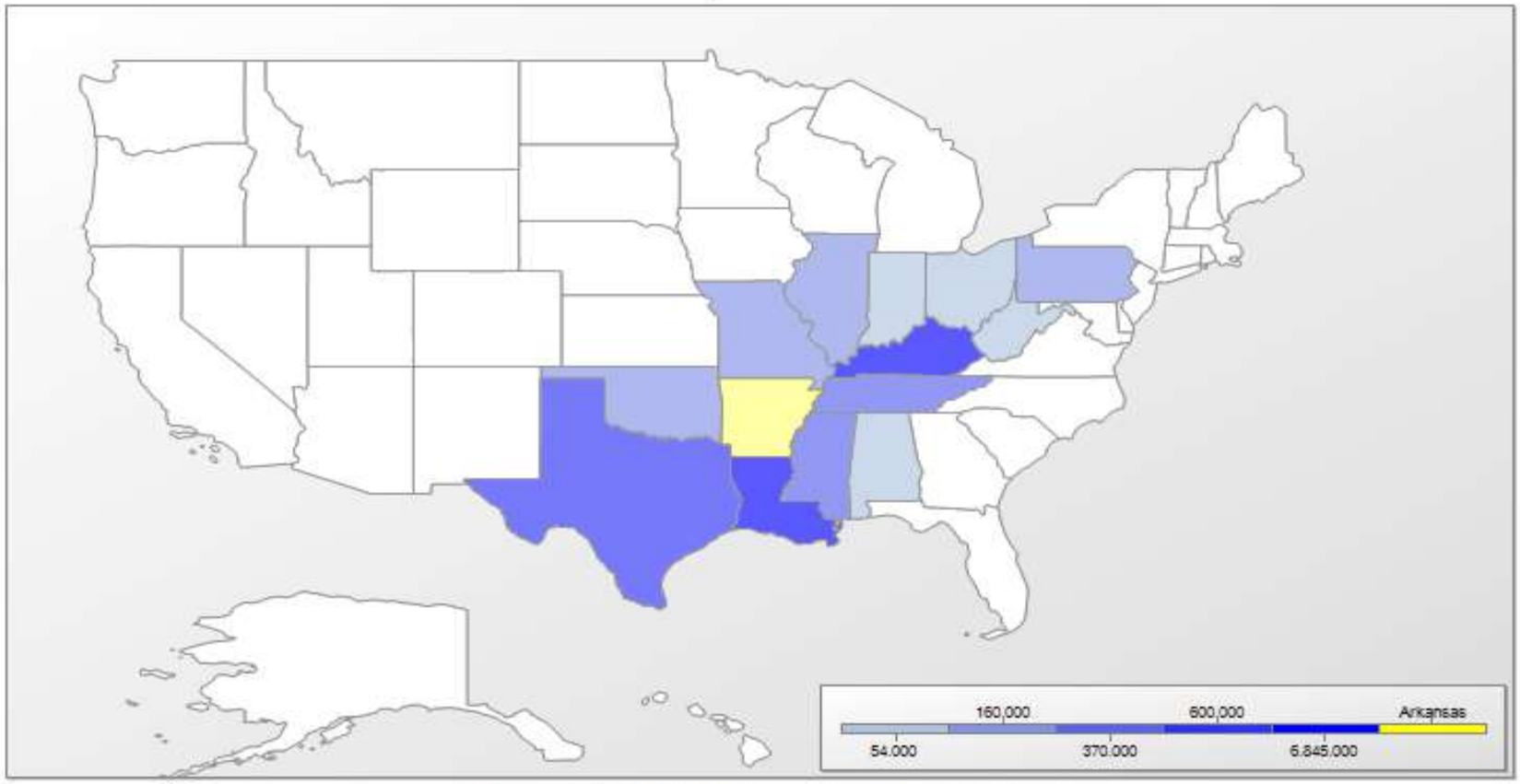


Source: USACE Waterborne Commerce Statistics

State Sending Tons	Total Tonnage Sent to Arkansas	Top Commodity - % of Total Sent to Arkansas
Louisiana	4,187,748	Iron/Steel-58%
Texas	938,522	Iron/Steel-79%
Missouri	846,989	**
Kentucky	414,757	Iron/Steel-58%
Illinois	306,980	Iron/Steel-76%
Tennessee	259,035	**
Minnesota	250,589	Iron/Steel-97%
Alabama	198,093	Iron/Steel-92%
Oklahoma	134,340	Iron/Steel-96%
Indiana	93,251	Iron/Steel-80%
Pennsylvania	71,677	**
Mississippi	58,245	**
Florida	16,238	**
West Virginia	10,500	**
Ohio	1,613	**

**Unknown and Not Elsewhere Classified Products

2014 States Receiving Commodities From Arkansas



Source: USACE Waterborne Commerce Statistics

State Receiving Tons	Total Tonnage Recieved from Arkansas	Top Commodity - % of Total Recieved from Arkansas
Louisiana	6,258,577	Grains-96%
Texas	552,762	**
Kentucky	456,635	Petroleum-87%
Mississippi	252,049	Petroleum-91%
Tennessee	234,390	Petroleum-60%
Illinois	203,019	Iron/Steel-41%
Oklahoma	112,999	**
Missouri	93,503	Petroleum-54%
Pennsylvania	93,212	**
Alabama	52,819	Iron/Steel-74%
Indiana	31,359	Iron/Steel-53%
West Virginia	21,055	**
Ohio	12,556	**

**Unknown and Not Elsewhere Classified Products

Arkansas

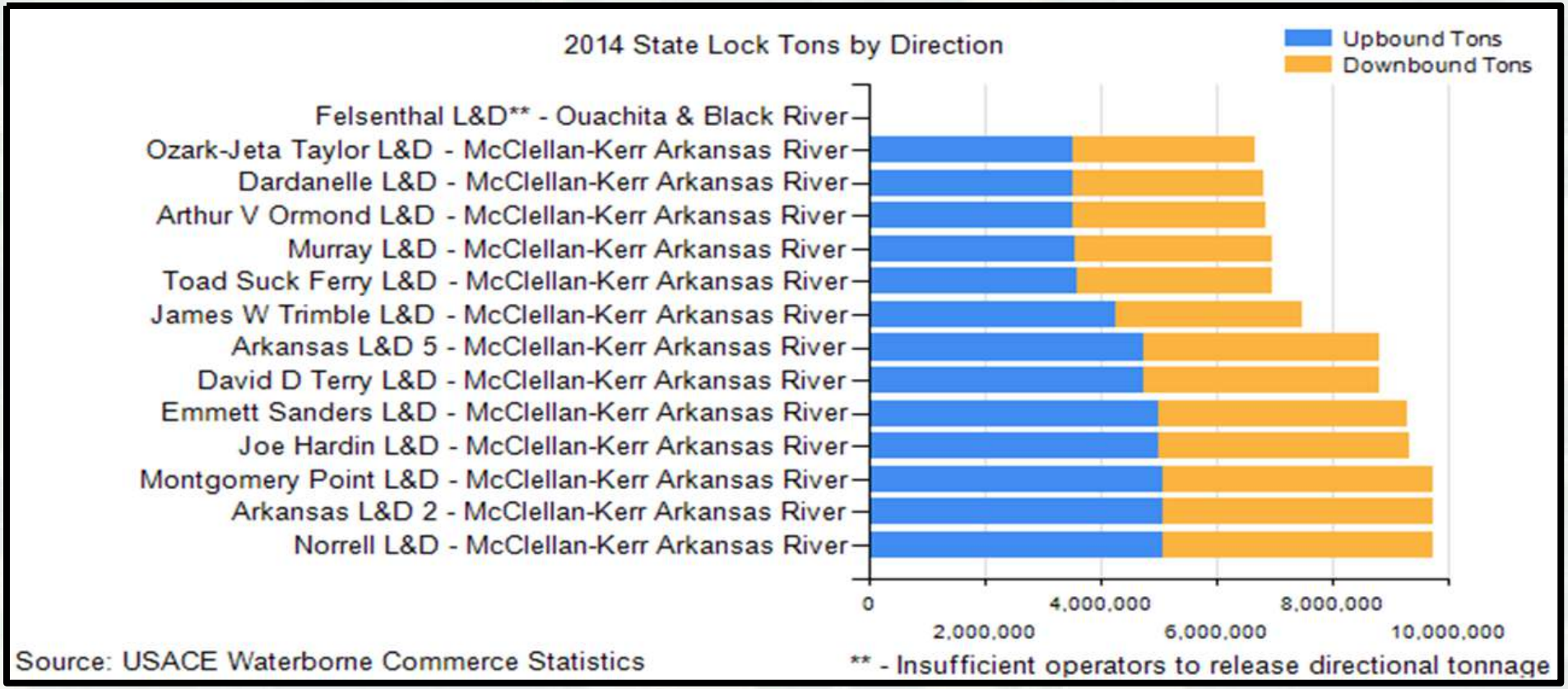
Five Year Trend of Tonnage Shipped or Received in Arkansas

Commodity Group	Five Year Commodity Trend (Millions of Tons)
Aggregates	4.10 (2010), 3.11 (2011), 2.94 (2012), 3.68 (2013), 3.33 (2014)
Chemicals	0.79 (2010), 0.69 (2011), 0.74 (2012), 0.74 (2013), 0.87 (2014)
Coal	0.22 (2010), 0.30 (2011), 0.25 (2012), 0.34 (2013), 0.21 (2014)
Crude Petroleum	**-2010, **-2011, **-2012, **-2013, **-2014
Grains	4.04 (2010), 4.10 (2011), 5.56 (2012), 6.57 (2013), 6.16 (2014)
Iron/Steel	4.02 (2010), 4.58 (2011), 5.18 (2012), 4.82 (2013), 5.20 (2014)
Ores/Minerals	0.17 (2010), 0.13 (2011), 0.14 (2012), 0.20 (2013), 0.27 (2014)
Others	0.95 (2010), 0.94 (2011), 0.77 (2012), 0.50 (2013), 0.62 (2014)
Petroleum	1.13 (2010), 1.31 (2011), 1.30 (2012), 1.65 (2013), 1.86 (2014)

Source: USACE Waterborne Commerce Statistics

***-Year = Insufficient Operators to Release Tonnage*

Arkansas


2014 State Lock Tons by Direction
Upbound Tons
Downbound Tons
Felsenthal L&D** - Ouachita & Black River
Ozark-Jeta Taylor L&D - McClellan-Kerr Arkansas River
Dardanelle L&D - McClellan-Kerr Arkansas River
Arthur V Ormond L&D - McClellan-Kerr Arkansas River
Murray L&D - McClellan-Kerr Arkansas River
Toad Suck Ferry L&D - McClellan-Kerr Arkansas River
James W Trimble L&D - McClellan-Kerr Arkansas River
Arkansas L&D 5 - McClellan-Kerr Arkansas River
David D Terry L&D - McClellan-Kerr Arkansas River
Emmett Sanders L&D - McClellan-Kerr Arkansas River
Joe Hardin L&D - McClellan-Kerr Arkansas River
Montgomery Point L&D - McClellan-Kerr Arkansas River
Arkansas L&D 2 - McClellan-Kerr Arkansas River
Norrell L&D - McClellan-Kerr Arkansas River
0
2,000,000
4,000,000
6,000,000
8,000,000
10,000,000
Source: USACE Waterborne Commerce Statistics
** - Insufficient operators to release directional tonnage

Arkansas 2014 Top 5 Waterways (Tons in thousands; values in Millions of dollars)

Waterway Name	State Rank	Tons	Value
Mississippi River	1	12,743.5	$5,303.7
Arkansas River	2	5,775.7	$1,576.5
White River	3	**	**
Ouachita and Black Rivers, AR and LA	4	60.6	$44.8
Poteau River, AR	5	30.3	$16.3

Commodity Values not calculated for foreign/coastal movements.

Source: USACE Waterborne Commerce Statistics, 2012 NDSU Commodity Valuation Analysis

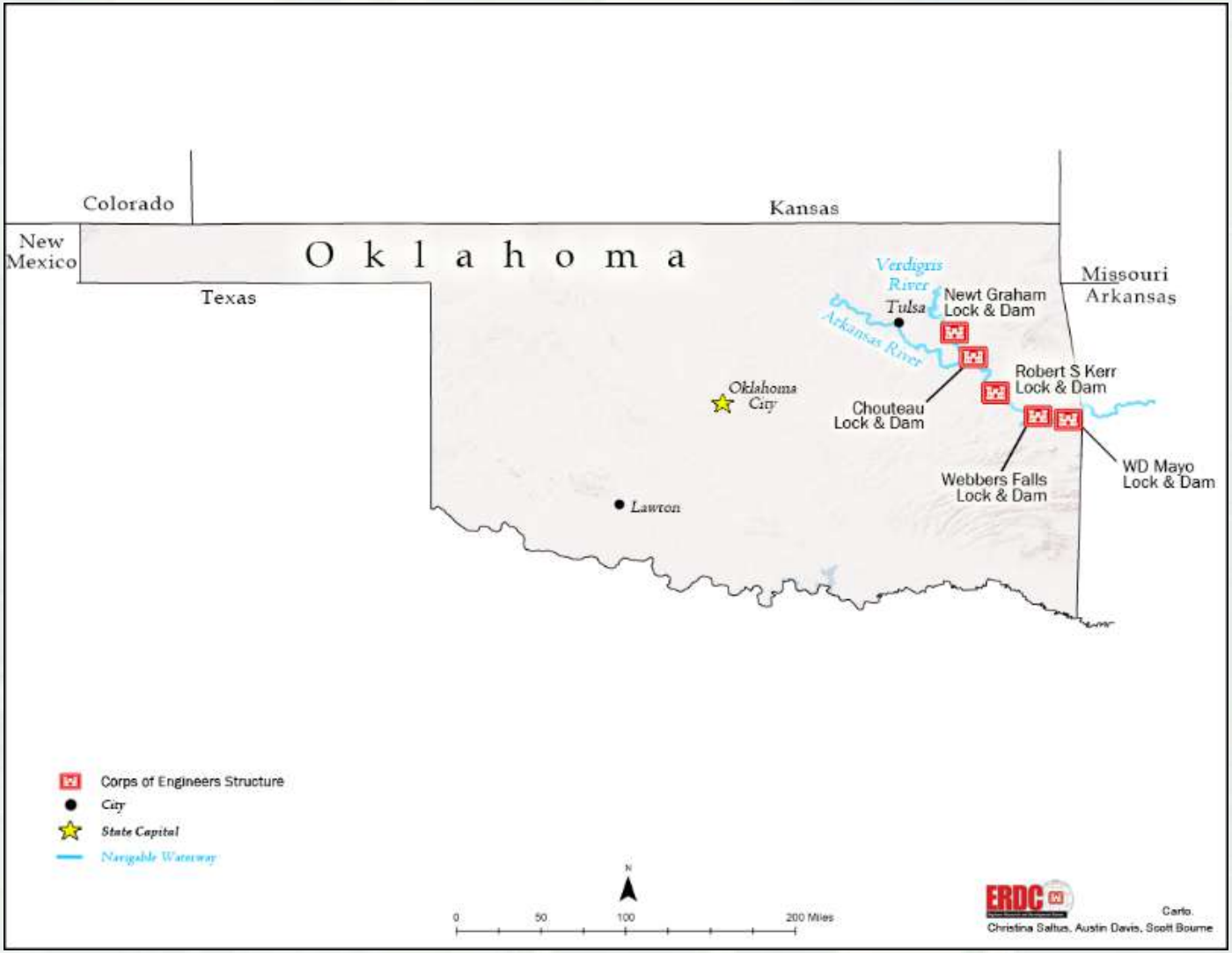
*** Insufficient operators to release tonnage*

Arkansas 2014 Top 3 Ports (Tons in thousands)

Port Name	U.S. Rank	Type	Total Port Tons	Port Tons Within State
Memphis, TN	5	River	14,748.6	3,246.3
Helena, AR	14	River	2,001.4	1,999.5
Yellow Bend Port, AR	32	River	350.5	350.5

Source: USACE Waterborne Commerce Statistics

*** Insufficient operators to release tonnage*


Colorado
Kansas
New Mexico
Oklahoma
Texas
Missouri
Arkansas
Verdigris River
Tulsa
Newt Graham Lock & Dam
Arkansas River
Robert S Kerr Lock & Dam
Oklahoma City
Chouteau Lock & Dam
WD Mayo Lock & Dam
Webbers Falls Lock & Dam
Lawton
Corps of Engineers Structure
City
State Capital
Navigable Waterway
N
0
50
100
200 Miles
ERDC
Carlo.
Christina Saltus, Austin Davis, Scott Bourne

Oklahoma

2014 State Quick Facts (Tons in Millions)

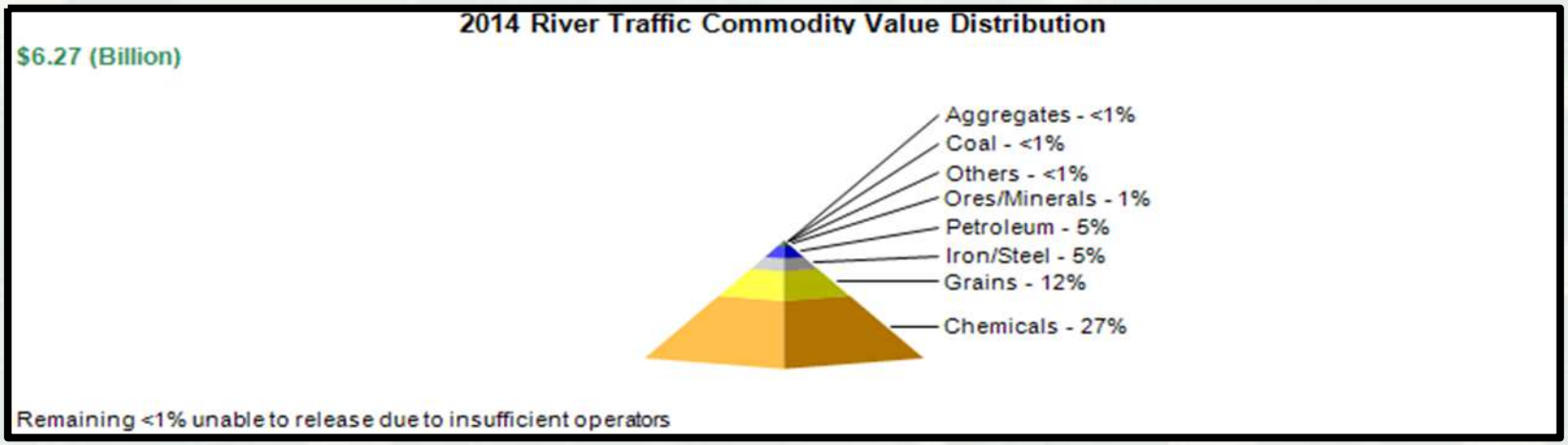
Tons Shipped -	3.1
Tons Received -	3.1
Tons Shipped Within State -	0.0
Total Commerical Docks -	22
Total Value (billions)-	$3.13
Total Domestic Tons -	6.2
Total Import Tons -	0.0
Total Export Tons -	0.0
Total Tons -	6.2

Source: Waterborne Commerce Statistics, 2012 NDSU Commodity Valuation Analysis

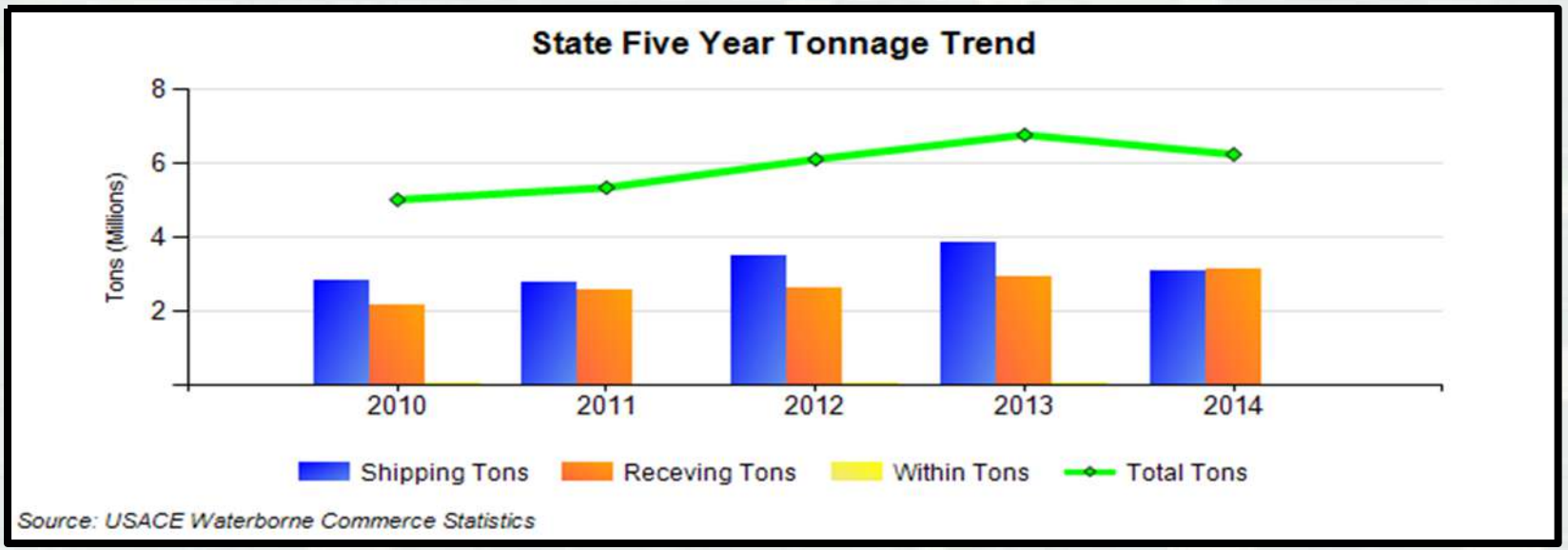
Oklahoma

Commodity Value Distribution Charts by Waterway Type

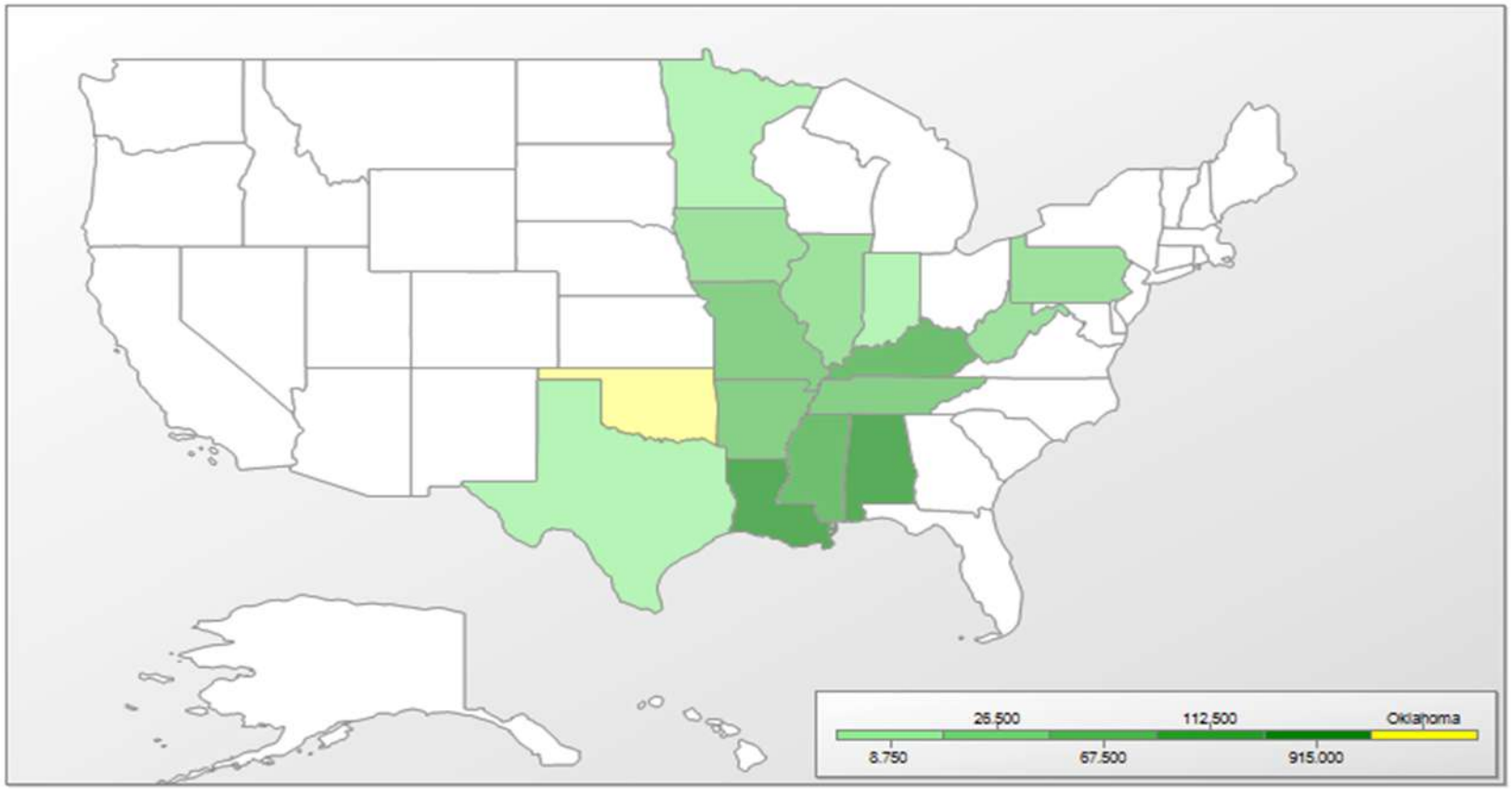
Source: Waterborne Commerce Statistics, 2012 NDSU Commodity Valuation Analysis (Commodity Values Not Calculated for Foreign Movments)



Oklahoma


State Five Year Tonnage Trend
Tons (Millions)
8
6
4
2
2010
2011
2012
2013
2014
Shipping Tons
Receving Tons
Within Tons
Total Tons
Source: USACE Waterborne Commerce Statistics

2014 States Sending Commodities to Oklahoma

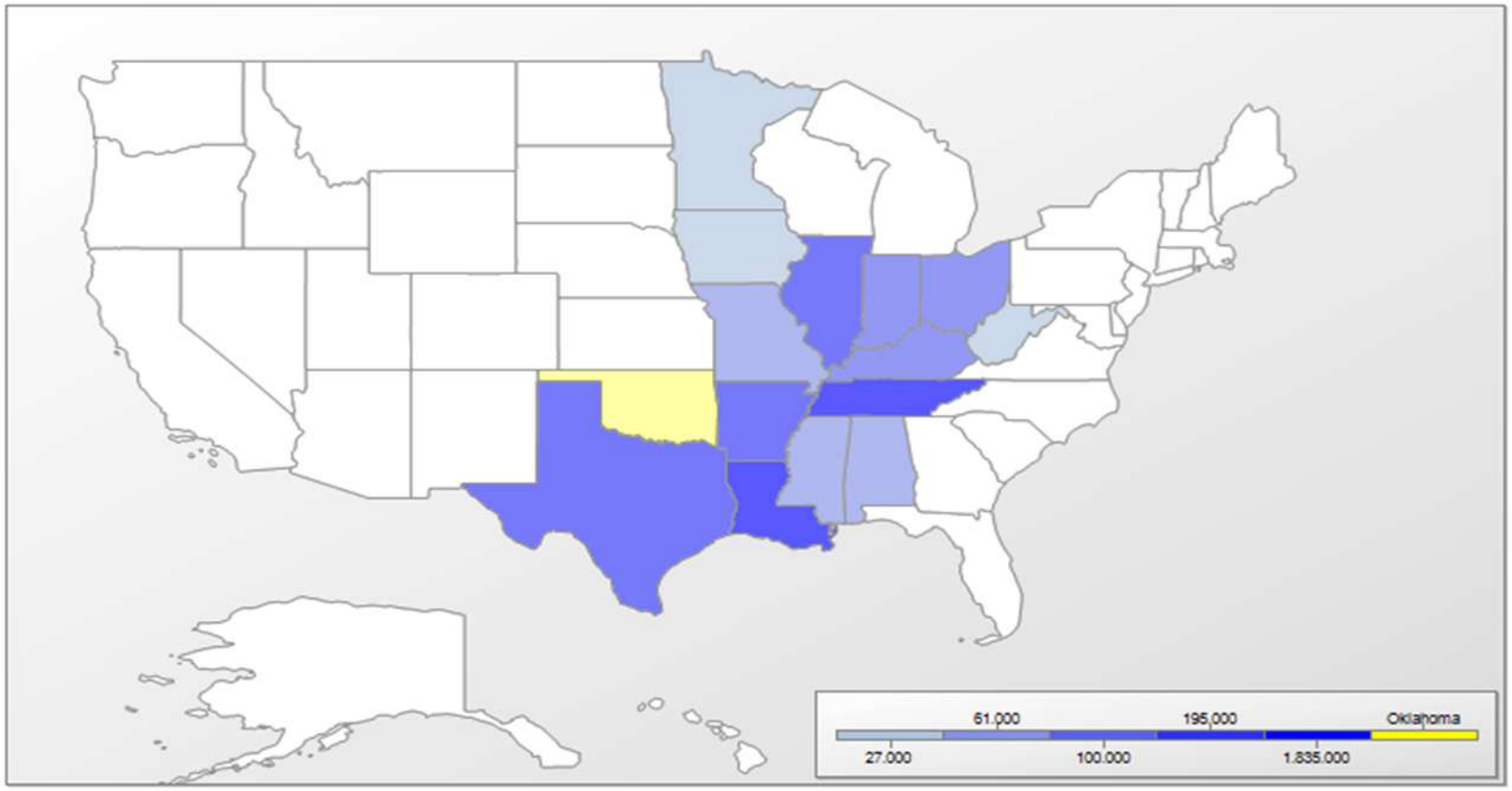


Source: USACE Waterborne Commerce Statistics

State Sending Tons	Total Tonnage Sent to Oklahoma	Top Commodity - % of Total Sent to Oklahoma
Louisiana	2,223,959	Chemicals-75%
Alabama	187,599	Iron/Steel-98%
Mississippi	154,996	**
Kentucky	124,194	**
Arkansas	112,999	**
Tennessee	94,122	**
Illinois	91,775	**
Missouri	40,857	**
Pennsylvania	37,355	**
West Virginia	34,020	**
Iowa	17,264	**
Indiana	13,047	Grains-56%
Minnesota	11,037	**
Texas	4,514	Iron/Steel-100%

**Unknown and Not Elsewhere Classified Products

2014 States Receiving Commodities From Oklahoma



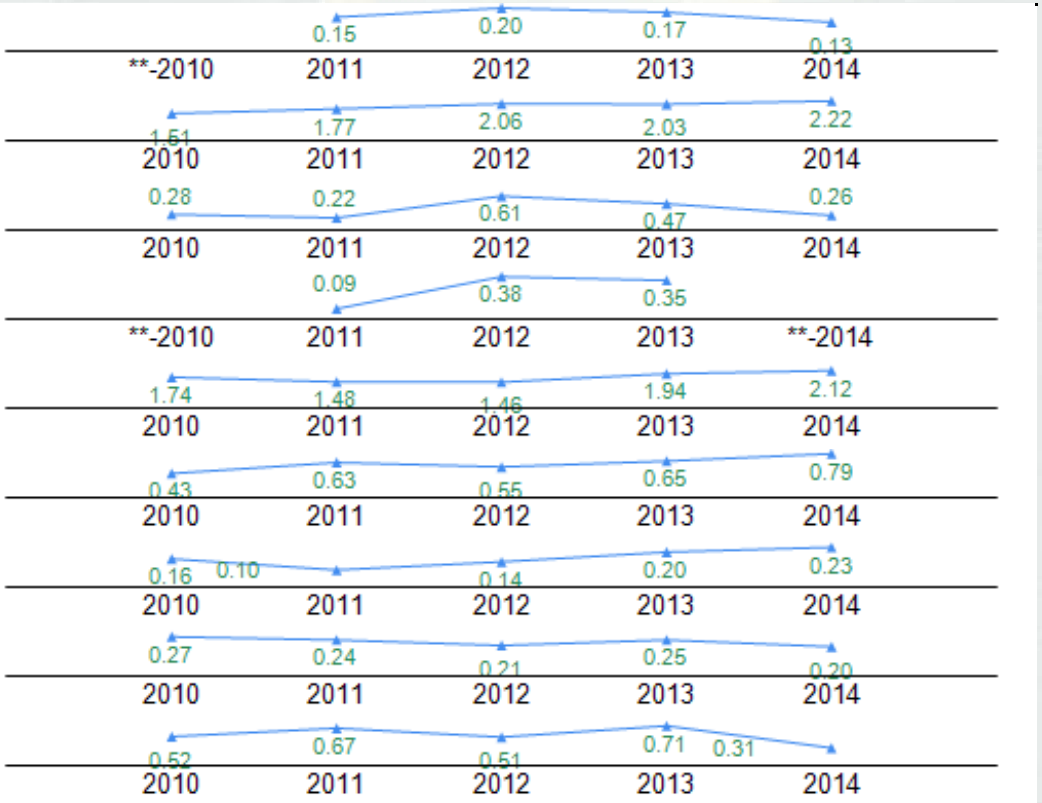
Source: USACE Waterborne Commerce Statistics

State Receiving Tons	Total Tonnage Recieved from Oklahoma	Top Commodity - % of Total Recieved from Oklahoma
Louisiana	2,020,999	Grains-82%
Tennessee	225,957	Grains-66%
Illinois	182,703	**
Arkansas	134,340	Iron/Steel-96%
Texas	110,700	**
Kentucky	81,002	**
Alabama	80,002	Grains-44%
Indiana	79,979	**
Ohio	63,833	**
Mississippi	49,083	**
Minnesota	31,821	**
Missouri	23,660	**
low a	9,600	**
West Virginia	6,200	**

**Unknown and Not Elsewhere Classified Products

Oklahoma

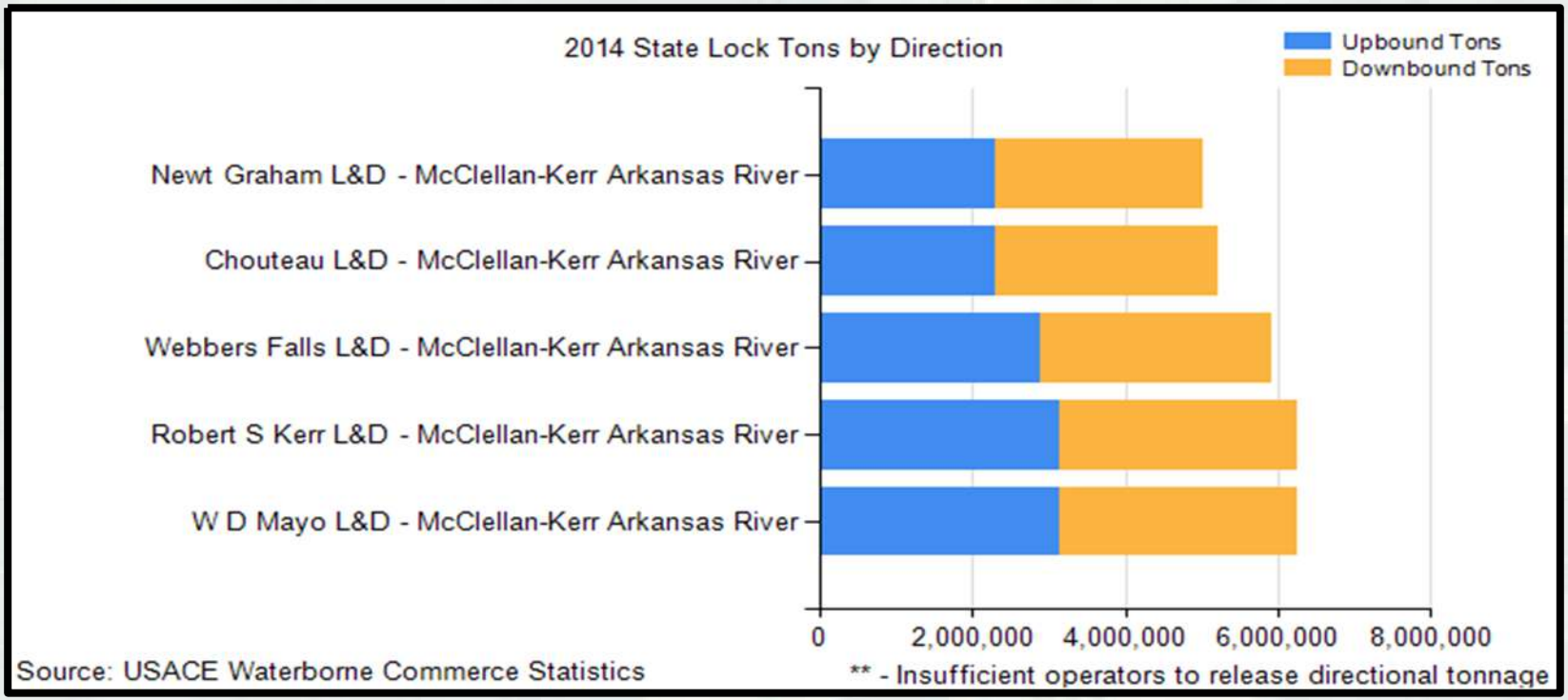
Five Year Trend of Tonnage Shipped or Received in Oklahoma

Commodity Group	Five Year Commodity Trend (Millions of Tons)
Aggregates	
Chemicals	
Coal	
Crude Petroleum	
Grains	
Iron/Steel	
Ores/Minerals	
Others	
Petroleum	

Source: USACE Waterborne Commerce Statistics

***-Year = Insufficient Operators to Release Tonnage*

Oklahoma


2014 State Lock Tons by Direction
Upbound Tons
Downbound Tons
Newt Graham L&D - McClellan-Kerr Arkansas River
Chouteau L&D - McClellan-Kerr Arkansas River
Webbers Falls L&D - McClellan-Kerr Arkansas River
Robert S Kerr L&D - McClellan-Kerr Arkansas River
W D Mayo L&D - McClellan-Kerr Arkansas River
0
2,000,000
4,000,000
6,000,000
8,000,000
Source: USACE Waterborne Commerce Statistics
** - Insufficient operators to release directional tonnage

Oklahoma 2014 Top 5 Waterways (Tons in thousands; values in Millions of dollars)

Waterway Name	State Rank	Tons	Value
Verdigris River, AR	1	5,224.4	$2,807.4
Arkansas River	2	743.4	$244.9
San Bois Creek, AR	3	279.8	$80.3

Commodity Values not calculated for foreign/coastal movements.

Source: USACE Waterborne Commerce Statistics, 2012 NDSU Commodity Valuation Analysis

*** Insufficient operators to release tonnage*

Oklahoma 2014 Top 3 Ports (Tons in thousands)

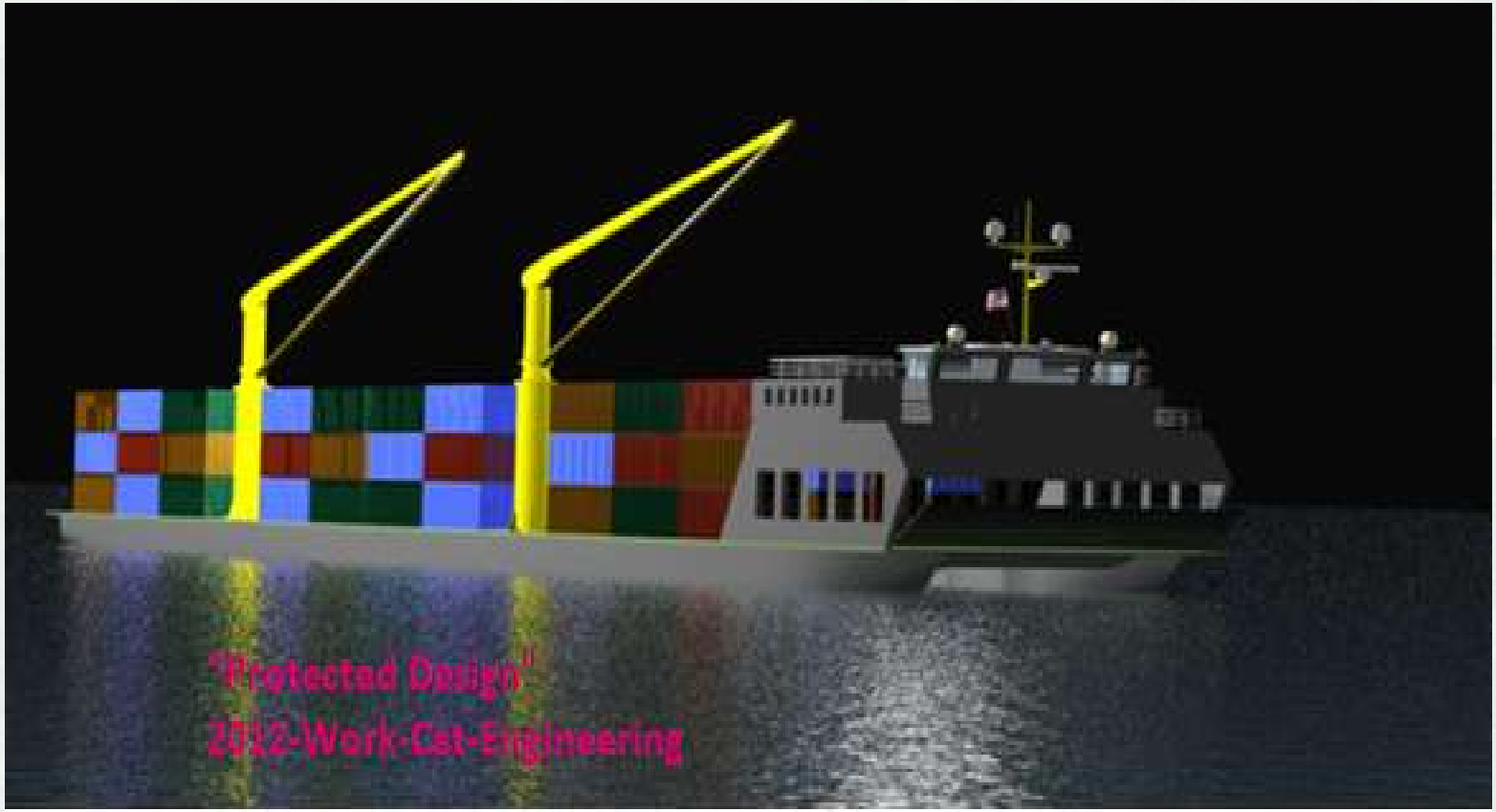
Port Name	U.S. Rank	Type	Total Port Tons	Port Tons Within State
Tulsa, Port of Catoosa, OK	13	River	2,462.6	2,462.6

Source: USACE Waterborne Commerce Statistics

*** Insufficient operators to release tonnage*

Freight Movement Alternatives
Waterway

WCE – 400




Situational Awareness
Critical Thinking
Creative Thinking
Collaborative Planning Opportunities for our Nation's Inland Waterways

Inland Navigation

Public Outreach

http://outreach.lrh.usace.army.mil/

http://www.navigationdatacenter.us/

Did you know?

- 1 barge = 16 hopper type rail cars = 70 trucks!
- US Inland Waterway system =12,000 miles or enough to stretch halfway around the world!
- 41 states are served by Corps ports and waterways!
- Combined lift of USACE locks = 6,791 ft! Highest = 113 ft (John Day L&D, Columbia River)