

# Channel Portfolio Tool

## Module 1: Introduction to CPT Capabilities

<https://cpt.usace.army.mil>

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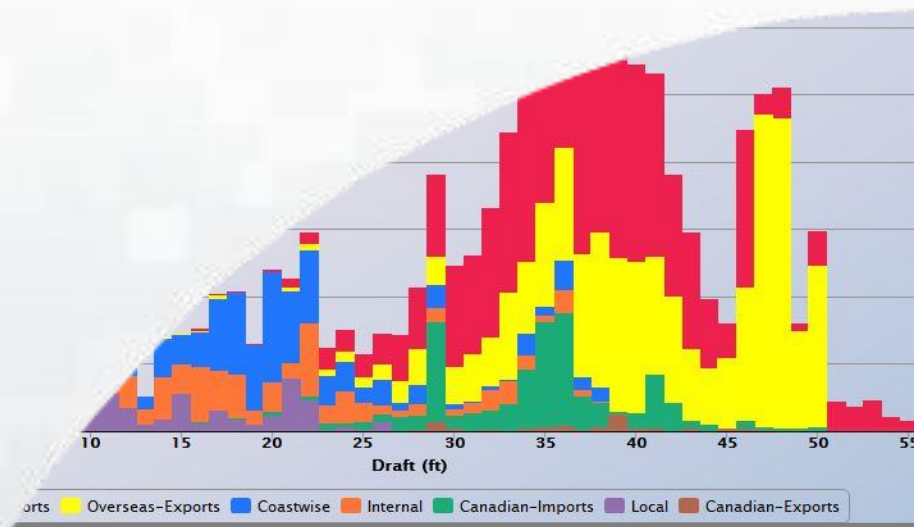
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US Army Corps  
of Engineers®



# Outline

- CPT output examples
- Data Source
- CPT organizational structure
- Ranking, Rollup, Flow – the key capabilities
- Viewing your results

# Non-disclosure Reminders

- Don't disclose anything that could be identified back to a single vessel or company
- Rule of thumb: less than 3, not to see
- Non-disclosure agreements must be re-signed at the start of every calendar year.

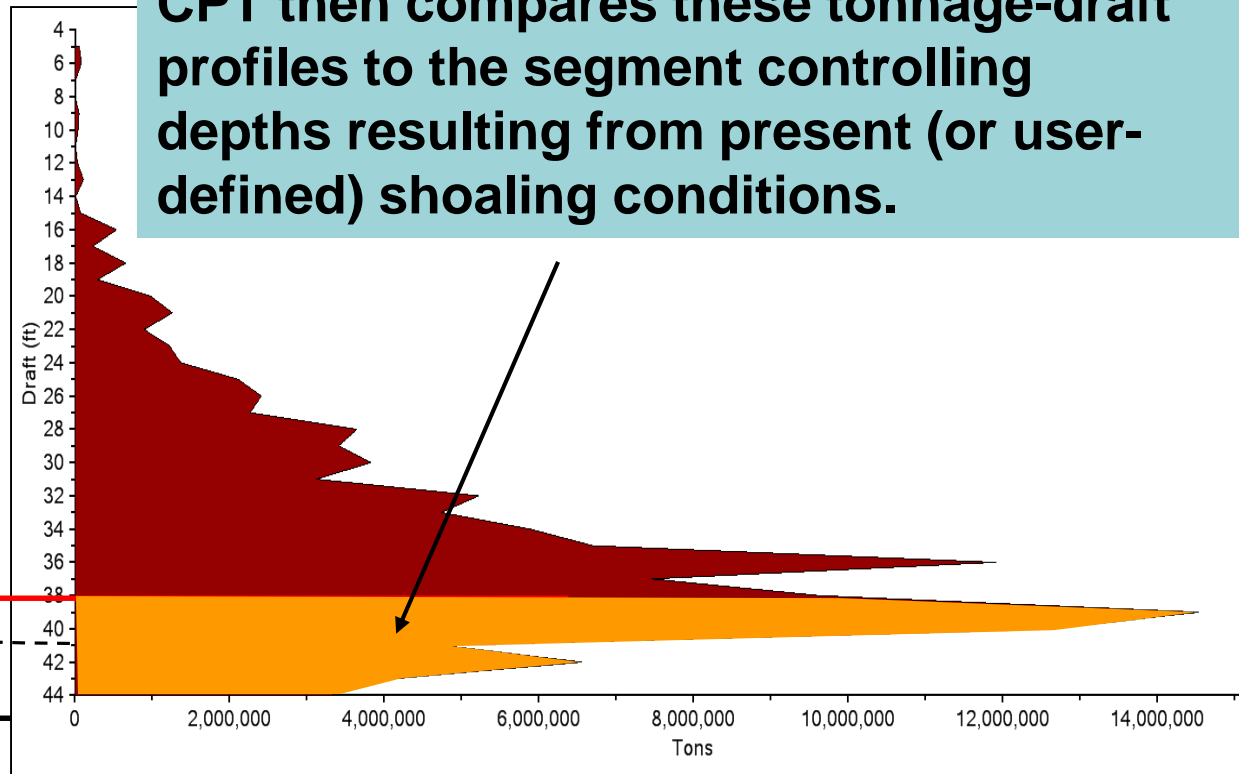
# Channel Portfolio Tool



CPT can generate depth-utilization profiles showing the distribution of cargo across the range of maintained depths for any system of navigation channels.



CPT then compares these tonnage-draft profiles to the segment controlling depths resulting from present (or user-defined) shoaling conditions.

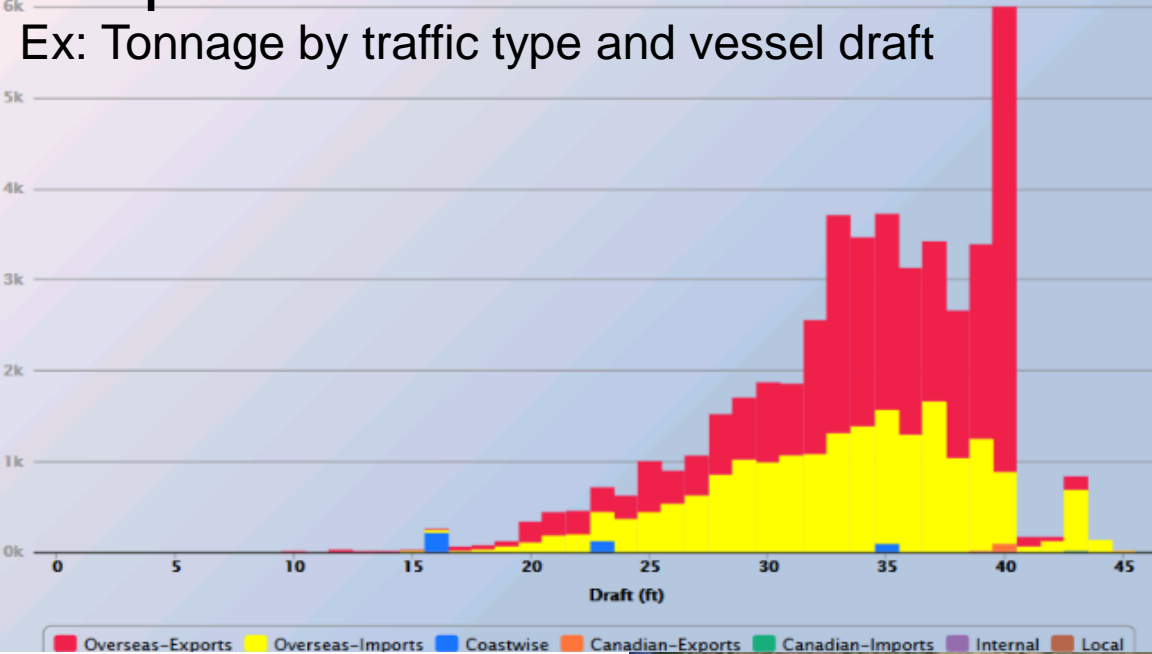


CPT query results can be displayed as tables, graphs, or maps.

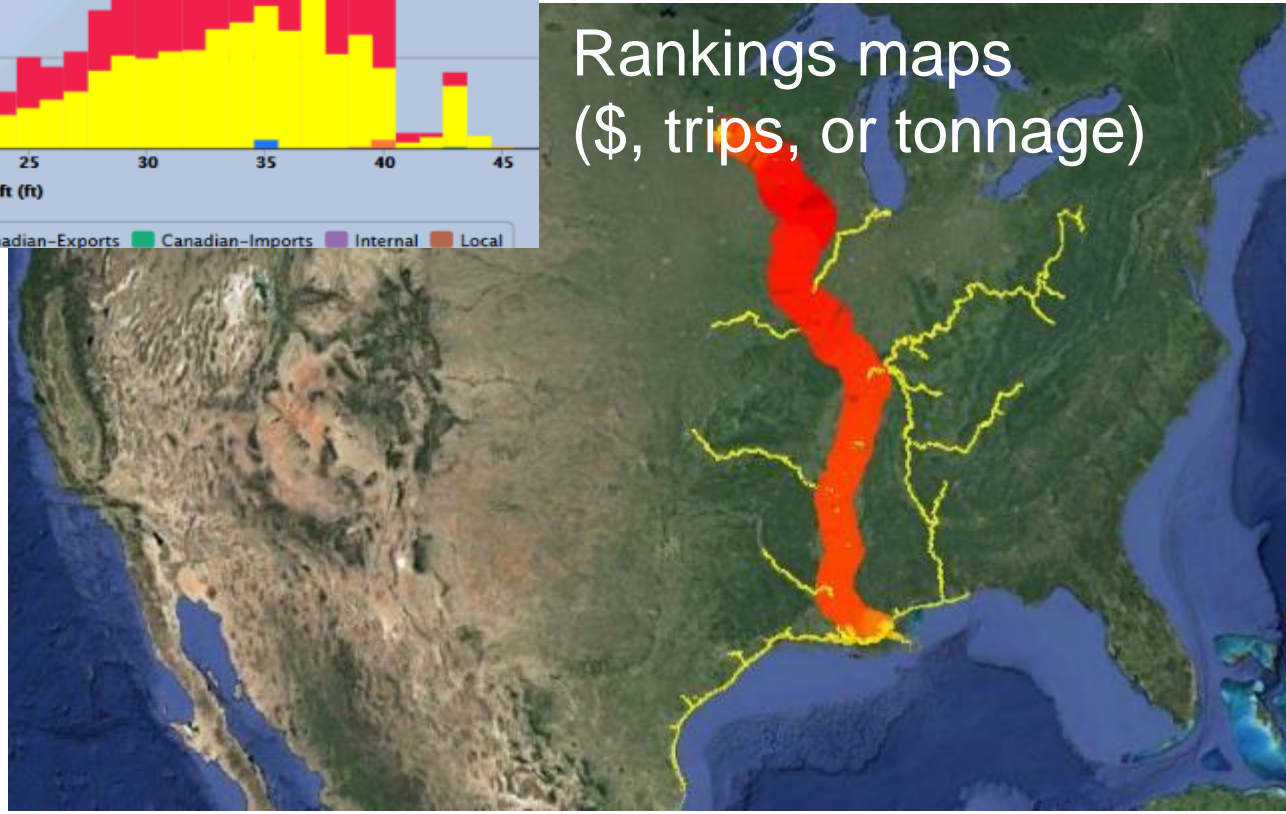
# CPT visualization outputs

## Graphs

Ex: Tonnage by traffic type and vessel draft

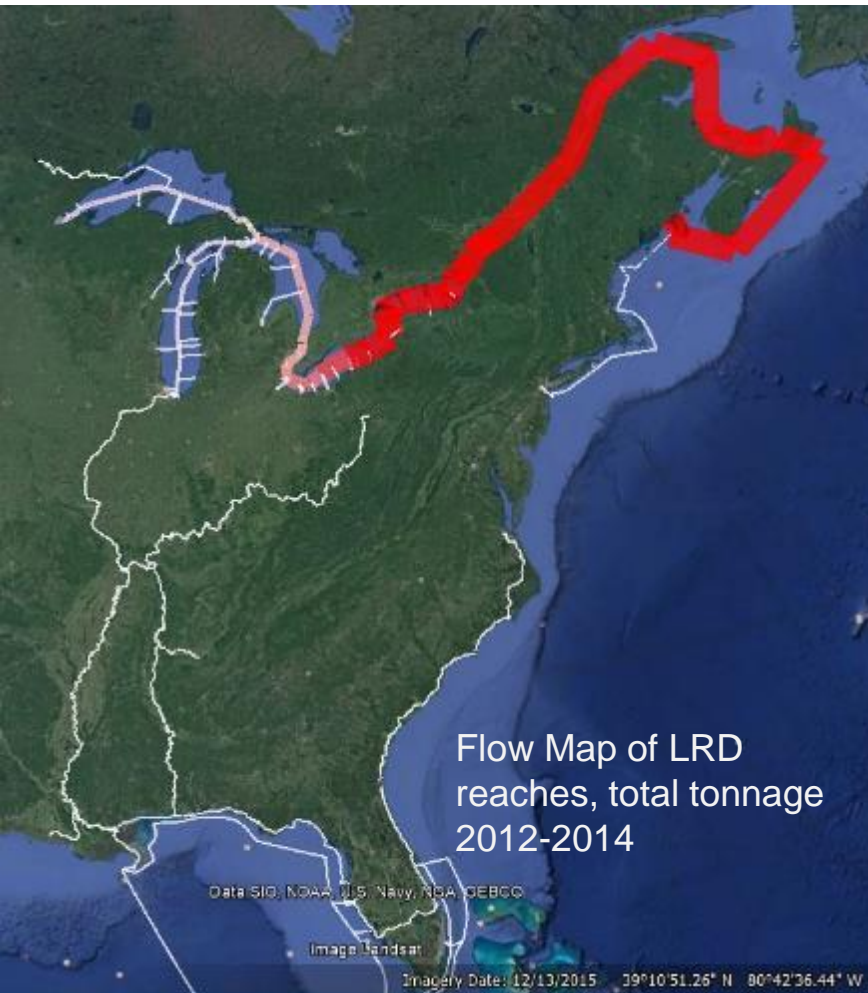


Rankings maps  
(\$, trips, or tonnage)



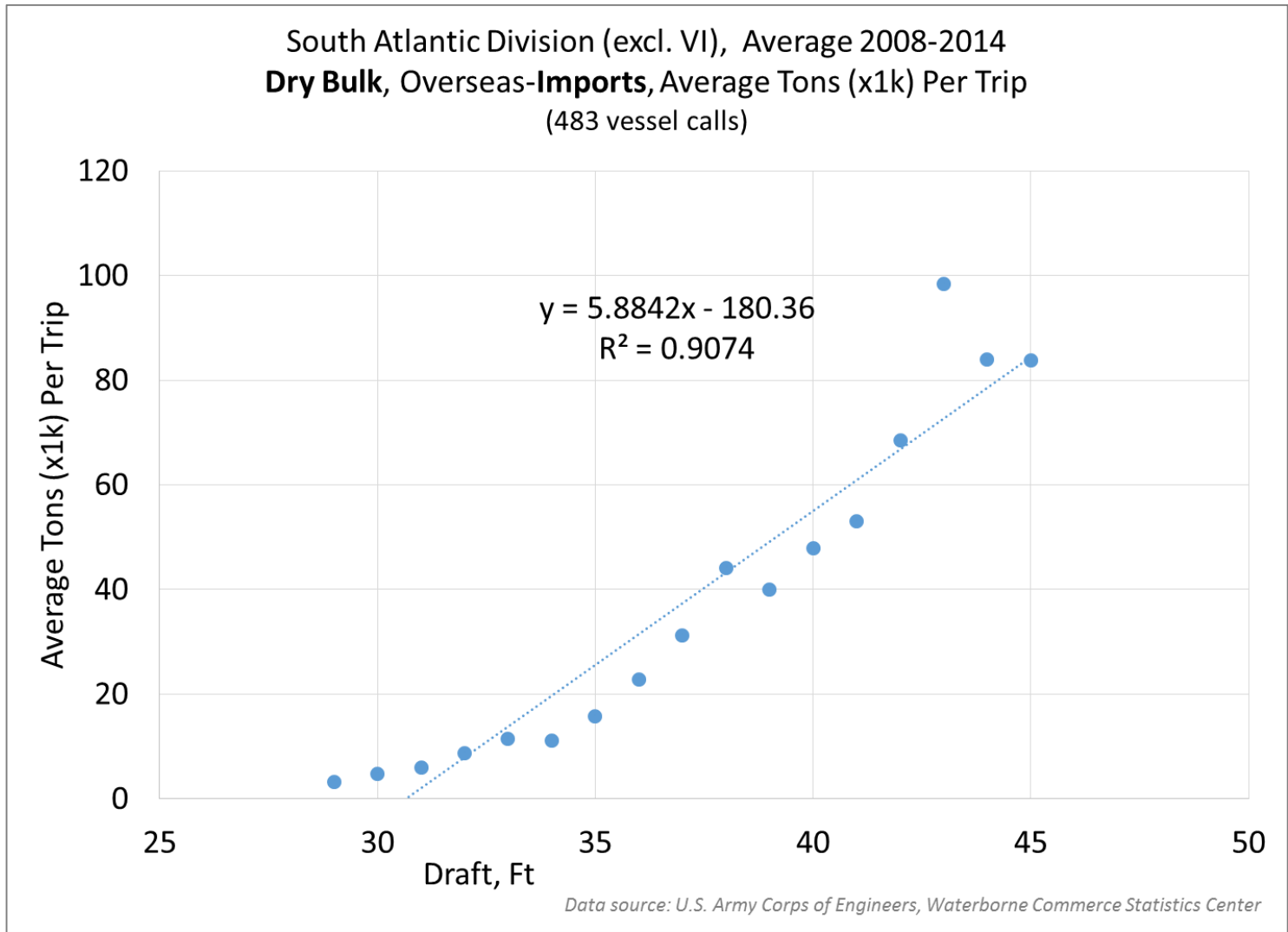


# CPT Flow maps: showing traffic connectivity based on origin-destination data

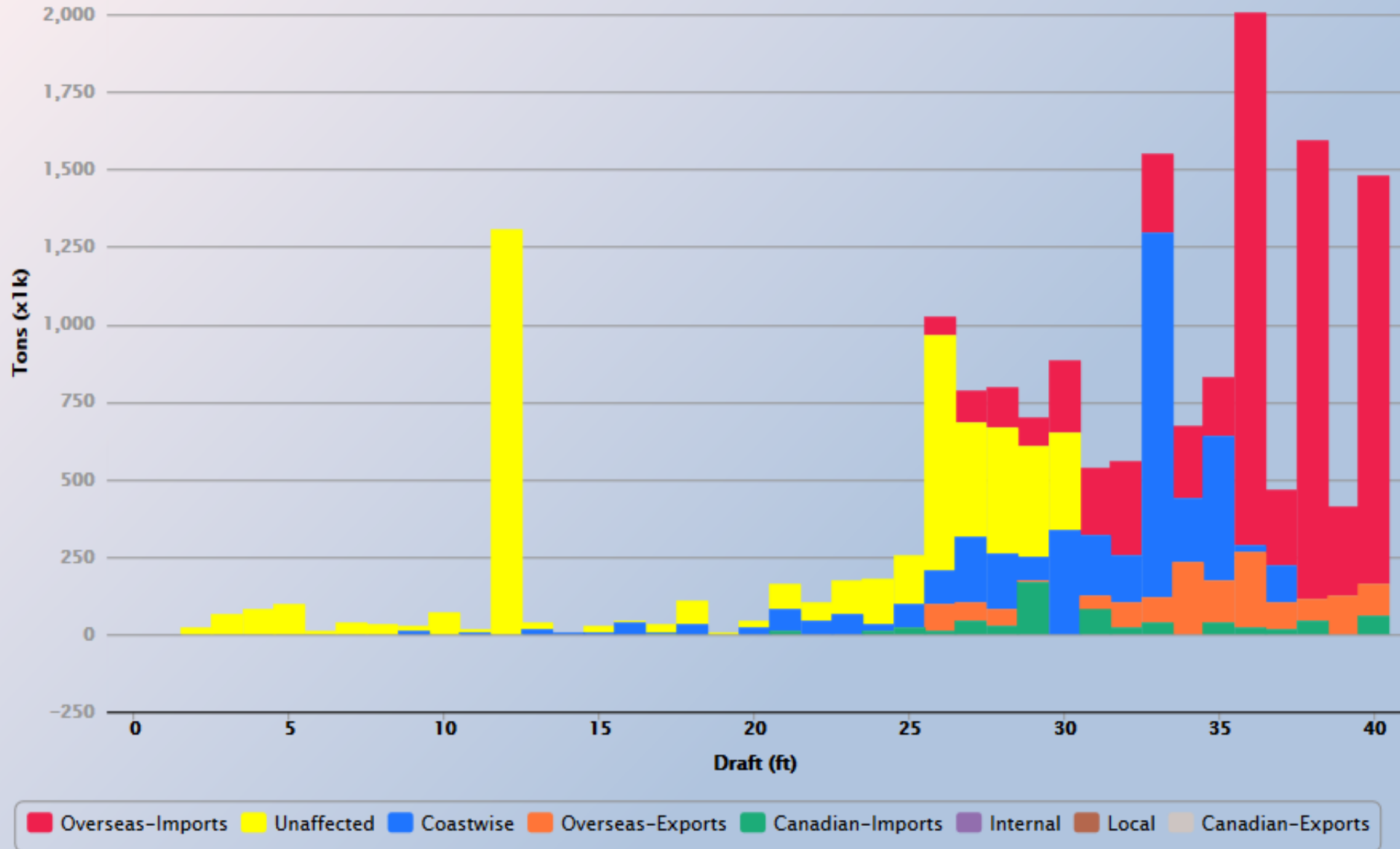


# CPT query outputs can be further analyzed in Excel to identify relevant navigation trends

## Ex: Tonnage per foot-of-draft trend, dry bulk vessels



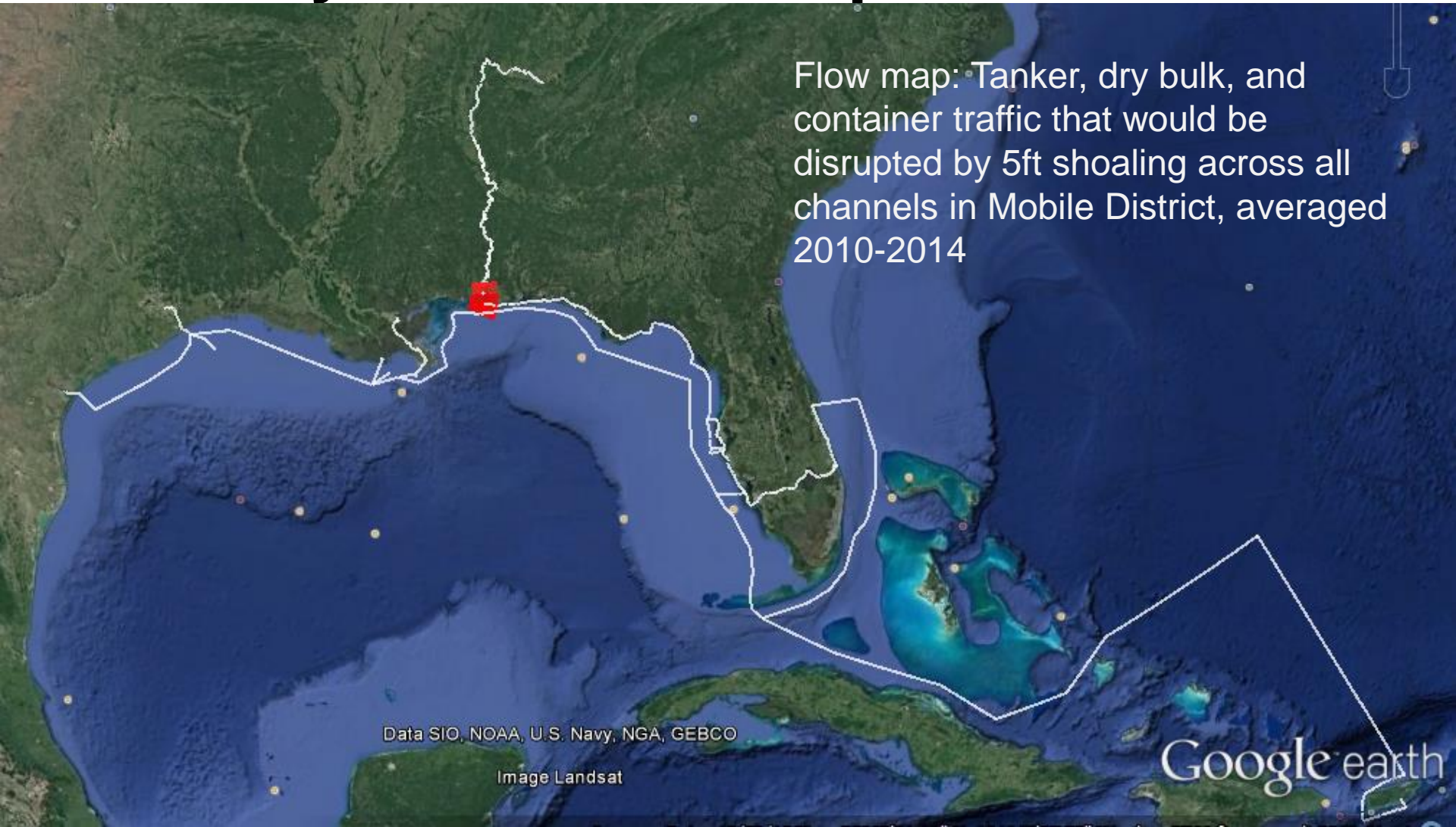
# CPT queries can include shoaling scenarios to identify potentially disrupted tonnage





# Shoaling scenario impacts can be displayed on flow maps to visualize overall system traffic impacts

Flow map: Tanker, dry bulk, and container traffic that would be disrupted by 5ft shoaling across all channels in Mobile District, averaged 2010-2014



**CPT DATA SOURCE**

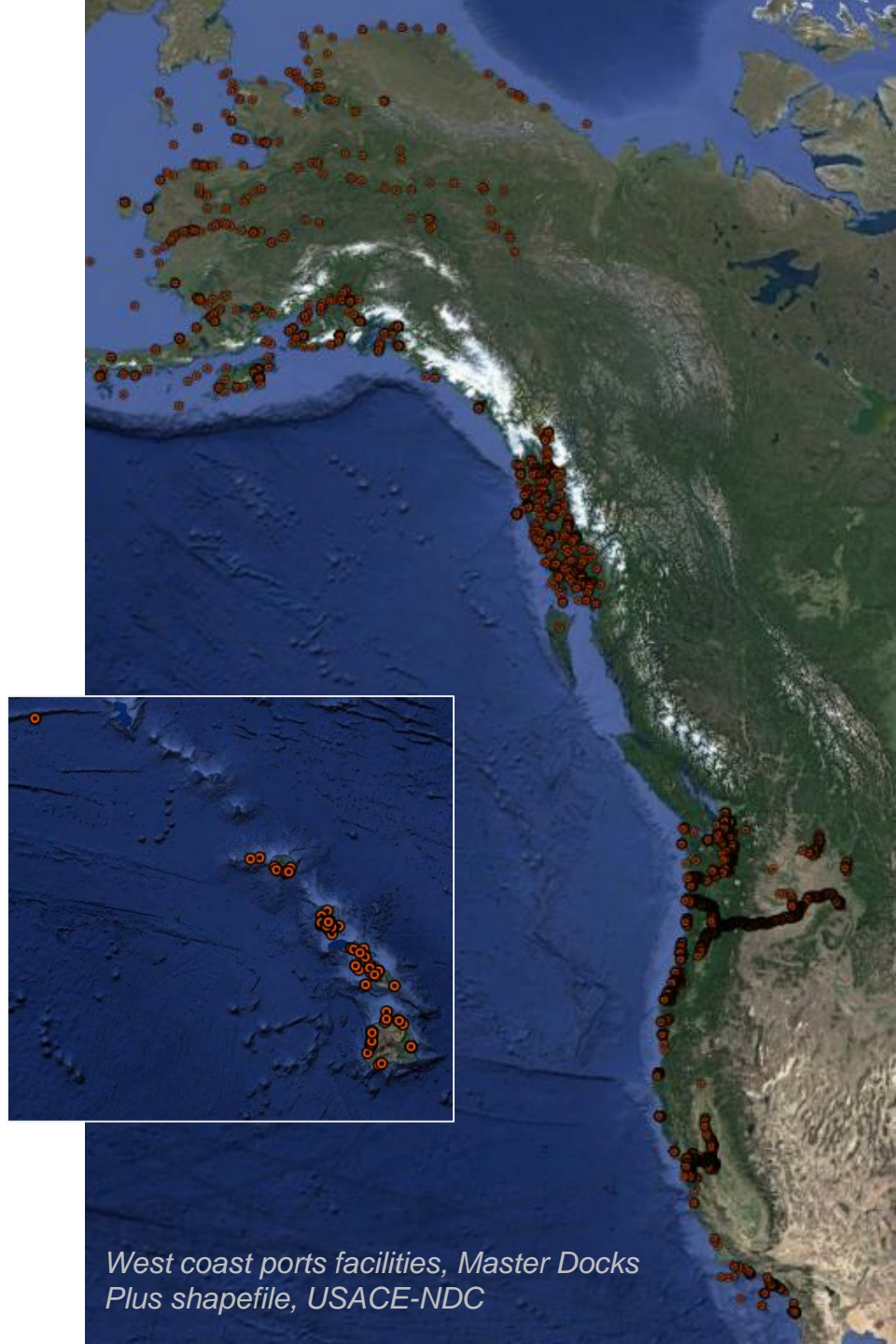


# Waterborne Commerce Data

- The Corps' Waterborne Commerce Statistics Center (WCSC) collects and collates data from several sources concerning commercial use of US waterways.
  - Dock-level, origin-to-destination routing (Corps-use-only)
  - Includes tons, commodity types, vessel counts, drafts
  - Aggregated data already published at project level
  - Corps Planning community has used WCSC data to support harbor deepening projects and inland studies
- Historically, the Operations community has used this data primarily for project-level tonnage and ton-mile metrics for O&M budget development.
- CPT provides querying power for this rich data set

# CPT Routing Network

- National Waterway Network
  - Multiple development partners
- Master Docks Plus
  - Over 40,000 ports, waterway facilities, and navigational points of interest
- CPT uses this network for origin-to-destination routing along the shortest path



*West coast ports facilities, Master Docks Plus shapefile, USACE-NDC*

# **HOW SPATIAL DATA IS ORGANIZED IN CPT**



# CPT organizational levels

**Division-** refers to USACE Major Subordinate Commands

**District** – aligned with USACE Civil Works District boundaries

**Project** – refers to federally authorized navigation projects.

*Note: a project is not the same as a port*

**Reach** – refers to contiguous sections of the Project domain, typically an entrance channel or portion of a bay or river channel. Each reach is identified by a waterway link number.

CPT users can aggregate/disaggregate results across these spatial organization levels depending on their interest.

When viewing results in CPT navigate between organizational levels using the **Reports** menu



Welcome: Marin Kress (marinkress)

Query Saver | Preferences | Locations | **Reports** | Admin | CSMART | Home | Profile | Log Off | Help

- Division
- District**
- Project
- Reach
- Work Package
- Reach Definition

	Trips	Budget Requested (x1k)	Budget Received (x1k)
33.208	109,502.000	\$0.000	\$0.000
58.506	12,054.000	\$0.000	\$0.000

# 3 Functional Pillars of CPT

**Ranking** – compare reach to reach data

**Rollup** – add up data without double-counting  
--“consolidated statement of commerce”

**Flow** – where cargo flows to/from  
– Including where cargo transits but does not stop

# RANKING VS. ROLLUP

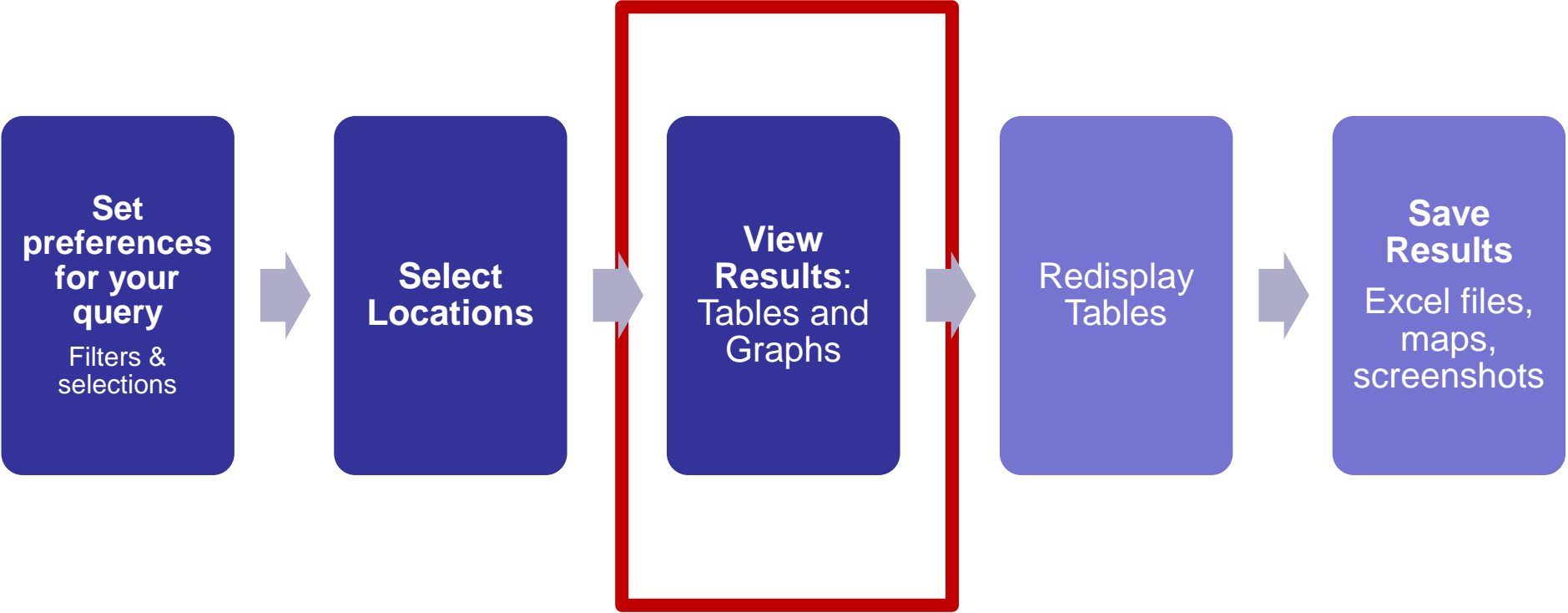
If you total up all the 'Rankings' results you could double-count tonnage that moved through multiple reaches.

Use the ROLLUP tab to get totals for all of the channel reaches in your query, without double-counting any tonnage, trips, or value.

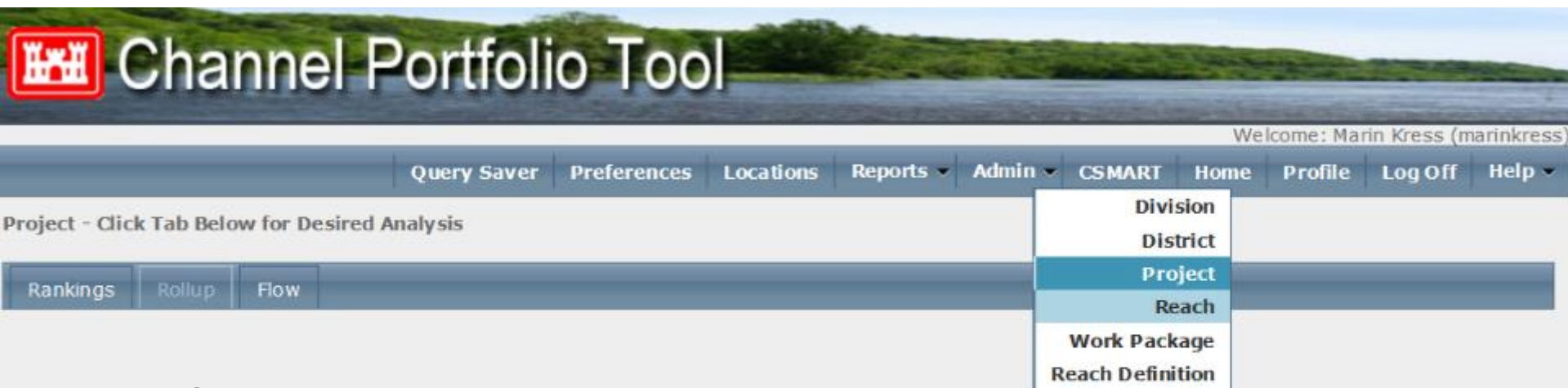
# **CPT RESULTS: TABLES AND GRAPHS**



# Generalized CPT Workflow



# Viewing CPT Results

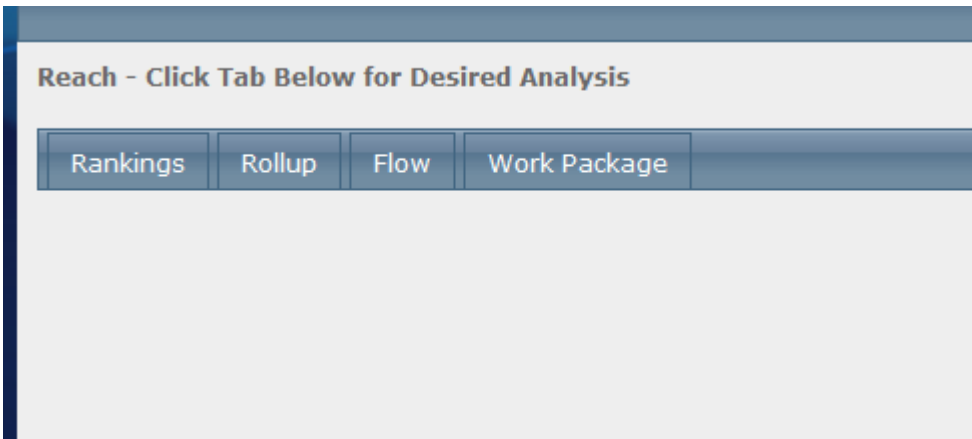


The screenshot shows the Channel Portfolio Tool interface. At the top left is a red logo with a white castle icon. The title "Channel Portfolio Tool" is displayed in large white text. A navigation bar contains the following items: Query Saver, Preferences, Locations, Reports (with a dropdown arrow), Admin (with a dropdown arrow), CSMART, Home, Profile, Log Off, and Help (with a dropdown arrow). The user is logged in as "Marin Kress (marinkress)". Below the navigation bar, there is a section titled "Project - Click Tab Below for Desired Analysis" with three tabs: Rankings, Rollup, and Flow. A dropdown menu is open under the Reports tab, listing the following options: Division, District, Project (highlighted in blue), Reach, Work Package, and Reach Definition.

Query results default to the highest organization level (Division, District, etc)

To change your view select the REPORTS drop-down menu and pick another level (Division, District, Project, Reach)

# Rankings: Comparing any set of reaches



Reach - Click Tab Below for Desired Analysis

Rankings Rollup Flow Work Package

Order Grid By:  Trips  Tons  Dollars

**Reach Ranking - Click Reach Row in Grid for Details**

Drag a column header and drop it here to group by that column

Group	Name	Tons (x1k)	Dollars (x1k)	Trips
Wilmington Harbor	WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485833)	6,394.618	\$10,669,640.411	2,312.000
Vicksburg, MS	Vicksburg, Ms (23240004)	32.791	\$6,198.941	33.000
Port Orford	Port Orford, OR - Approach (853700)	0.000	\$0.000	104.000

# Table: Ranking

Group	Name	Tons (x1k)	Dollars (x1k)	Trips
New York and New Jersey Channels	NEW YORK AND NEW JERSEY CHANNELS, NY_NJ (MILE 28 TO MILE 30) (413600)	83,988.208	\$160,881,281.784	31,361.000

Rankings

Rollup

Flow

Work Package

Order Grid By:

Trips

Tons

Dollars

Update

Reach Ranking - Click Reach Row in Grid for Details

Export to Excel

Export to PDF

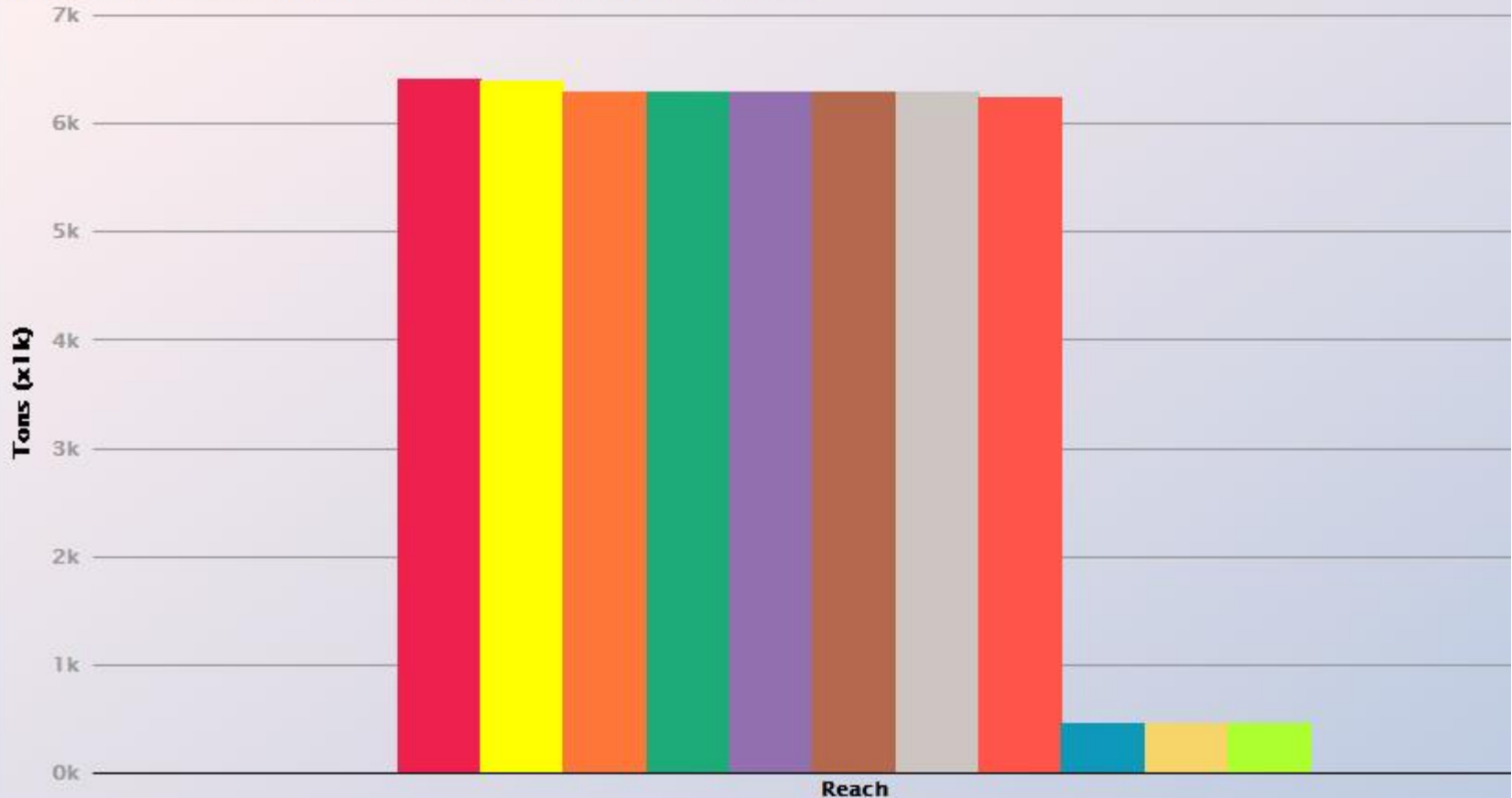
Export to Google Earth

Drag a column header and drop it here to group by that column

# Rankings graph: Reach vs. Tons

Ranking Reach vs. Average Yearly Tons for AllShipments

Ranking Reach vs. Average Yearly Tons for AllShipments



- WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485866)
- WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485833)
- AIWW, NC\_VA-SAW (MILE 300 TO MILE 308) (48578001)
- AIWW, NC\_VA-SAW (MILE 300 TO MILE 308) (485720)
- AIWW, NC\_VA-SAW (MILE 300 TO MILE 308) (485740)
- AIWW, NC\_VA-SAW (MILE 300 TO MILE 308) (485760)
- AIWW, NC\_VA-SAW (MILE 300 TO MILE 308) (48578002)
- WILMINGTON HARBOR, NC (MILE 16 TO MILE 30) (485600)
- WILMINGTON HARBOR, NC (MILE 31 TO MILE 33) (485310)
- WILMINGTON HARBOR, NC (MILE 31 TO MILE 33) (485320)
- WILMINGTON HARBOR, NC (MILE 31 TO MILE 33) (485330)



# Table: Rollup - Traffic

Rankings Rollup Flow Work Package

Reach Rollup - Traffic

Group by:  Draft  System  Vessel Type  Traffic

Order Grid By:  Trips  Tons  Dollars

Update

Export to Excel Export to PDF

Drag a column header and drop it here to group by that column

Year	Draft	System	Vessel Type	Traffic	Tons(x1k)	Dollars (x1k)	Trips
2014	39		Self-Propelled Dry	Overseas-Imports	4,938.766	\$13,098,445.3...	289.000
2014	20		Liquid Barge	Coastwise	3,214.435	\$1,731,371.488	514.000

Check/uncheck when viewing table, Update

Rankings Rollup Flow Work Package

Reach Rollup - Traffic

Group by:  Draft  System  Vessel Type  Traffic

Order Grid By:  Trips  Tons  Dollars

Update

Export to Excel Export to PDF

Drag a column header and drop it here to group by that column

Year	Tons (x1k)	Dollars (x1k)	Trips
2014	109,626.218	\$185,308,152.968	43,732.000

# Table: Rollup - Commodity

Maximum number of columns

With the Group By boxes checked: Draft, System, Vessel Type, Traffic

Reach Rollup - Commodity

Export to Excel	Export to PDF						
Drag a column header and drop it here to group by that column							
Year	Draft	System	Vessel Type	Traffic	Commodity	Tons(x1k)	Dollars (x1k)
2014	41		Tanker	Canadian-Imports	Crude Petroleum (21)	1,927.517	\$1,318,016

Minimum column display option: Year, **Commodity**, Tons, Dollars

Reach Rollup - Commodity

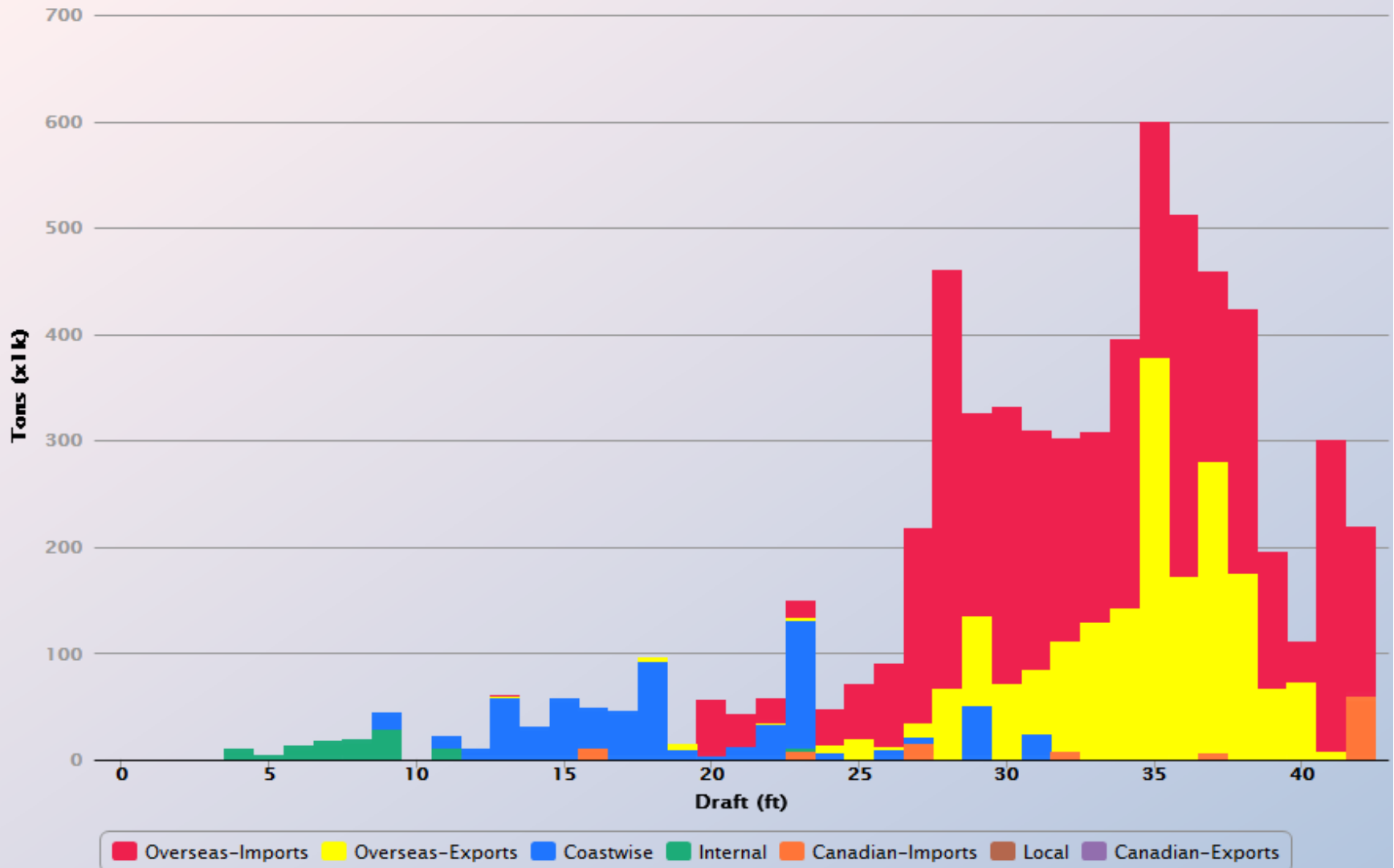
Export to Excel	Export to PDF		
Drag a column header and drop it here to group by that column			
Year	Commodity	Tons (x1k)	Dollars (x1k)
2014	All Manufactured Equipment, Machinery and Products (70)	11,378.906	\$81,304,966.539
2014	Other Chemicals and Related Products (32)	9,360.901	\$25,177,719.060

# Rollup graph: Draft vs. Tons

Axis Controls

Rollup Reach Traffic Draft vs. Average Yearly Tons for AllShipments

Rollup Reach Traffic Draft vs. Average Yearly Tons for AllShipments



# RANKING VS. ROLLUP

The next few slides will illustrate the difference between the Rankings result and a Rollup result.

Reminder, you should never sum up Rankings to get total tonnage, let the Rollup tab do it for you and you'll avoid any double counting.

# Rankings - multiple reaches, each with its own record of tonnage, dollars, trips that passed through the reach.

Reach - Click Tab Below for Desired Analysis

Rankings

Rollup

Flow

Work Package

Order Grid By:  Trips  Tons  Dollars

Reach Ranking - Click Reach Row in Grid for Details

Export to Excel

Export to PDF

Export to Google Earth

Drag a column header and drop it here to group by that column

Group	Name	Tons (x1k)	Dollars (x1k)	Trips
Wilmington Harbor	WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485866)	6,408.738	\$10,689,634.239	19,444.000
Wilmington Harbor	WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485833)	6,394.618	\$10,669,640.411	2,312.000
Wilmington Harbor	AIWW, NC_VA-SAW (MILE 300 TO MILE 308) (48578001)	6,299.249	\$10,476,764.011	3,802.000

Export to Excel

Export to PDF

Export to Google Earth

NO TOTALS LISTED

Page 1 of 2

Displaying items 1 - 10 of 11

Tonnage may transit multiple reaches during a single voyage, for this reason you cannot simply sum all the rankings results to get total tonnage.

# Rollup – provides tonnage, dollar, and trip totals for selected reaches without double counting tonnage that passed through multiple reaches.

Reach - Click Tab Below for Desired Analysis

Rankings **Rollup** Flow Work Package

Reach Rollup - Traffic

Group by:  Draft  System  Vessel Type  Traffic

Order Grid By:  Trips  Tons  Dollars

Drag a column header and drop it here to group by that column

Year	Draft (ft)	Traffic	Tons (x1k)	Dollars (x1k)	Trips
2014	28	Overseas-Imports	392.562	\$363,206.851	55.000
2014	35	Overseas-Exports	378.606	\$316,206.329	24.000
2014	36	Overseas-Imports	340.354	\$752,475.779	33.000
2014	41	Overseas-Imports	292.537	\$77,755.470	7.000
2014	37	Overseas-Exports	272.534	\$637,567.006	31.000
2014	30	Overseas-Imports	259.987	\$388,869.738	50.000
2014	34	Overseas-Imports	252.781	\$847,116.973	38.000
2014	38	Overseas-Imports	248.625	\$292,243.319	15.000
			<b>6,504.18</b>	<b>\$10,749,222.03</b>	<b>21,846.00</b>

Rollup view shows totals below the table

# Flow: From Origin-to-Destination

- Reported shipment information provides only ORIGIN and DESTINATION points, known as OD pairs.
- CPT uses a routing algorithm to find the shortest path between the OD pairs along the waterway network.
- CPT then 'credits' that shipment to whatever reaches fall along the shortest path. This informs the ROLLUP and FLOW results.

# **FLOW TAB TABLES AND GRAPHS**



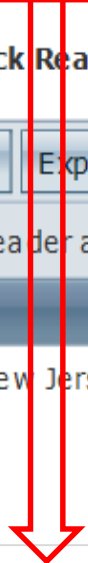
# Table: Flow

Order Grid By:  Trips  Tons  Dollars

Click Reach Flow - Click Reach Row in Grid for Details

Drag a column header and drop it here to group by that column

Group	Name	Tons (x1k)	Dollars (x1k)	Trips
New York and New Jersey Channels	NEW YORK AND NEW JERSEY CHANNELS, NY_NJ (MILE 28 TO MILE 30) (413600)	83,988.208	\$160,881,281.784	31,360



Order Grid By:  Trips  Tons  Dollars

Click Reach Flow - Click Reach Row in Grid for Details

Drag a column header and drop it here to group by that column

Group	Name	Tons (x1k)	Dollars (x1k)	Trips
New York and New Jersey Channels	NEW YORK AND NEW JERSEY CHANNELS, NY_NJ (MILE 28 TO MILE 30) (413600)	83,988.208	\$160,881,281.784	31,360
New York Harbor	UPPER BAY, NEW YORK HARBOR, NY_NJ (MILE 3 TO MILE 4) (413900)	51,388.410	\$141,806,170.534	23,450

# Flow Tab - Project: Wilmington Harbor

## To see reach details, click on a row, new tab appears

Reach - Click Tab Below for Desired Analysis

Rankings Rollup **Flow** Work Package **WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485866) Reach Flow**

Order Grid By:  Trips  Tons  Dollars

Reach Flow - Click Reach Row in Grid for Details

Drag a column header and drop it here to group by that column

Group	Name	Tons (x1k)	Dollars (x1k)	Trips
Wilmington Harbor	WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485866)	6,408.738	\$10,689,634.239	19,444.000
Wilmington Harbor	WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485833)	6,394.618	\$10,669,640.411	2,312.000
Atlantic Ocean	WILMINGTON HARBOR, NC DEEP WATER ACCESS (524600)	6,390.559	\$10,668,723.199	1,184.000

Page 1 of 84 | Displaying items 1 - 10 of 831

Note: No totals displayed

Reach - Click Tab Below for Desired Analysis

Rankings

Rollup

Flow

Work Package

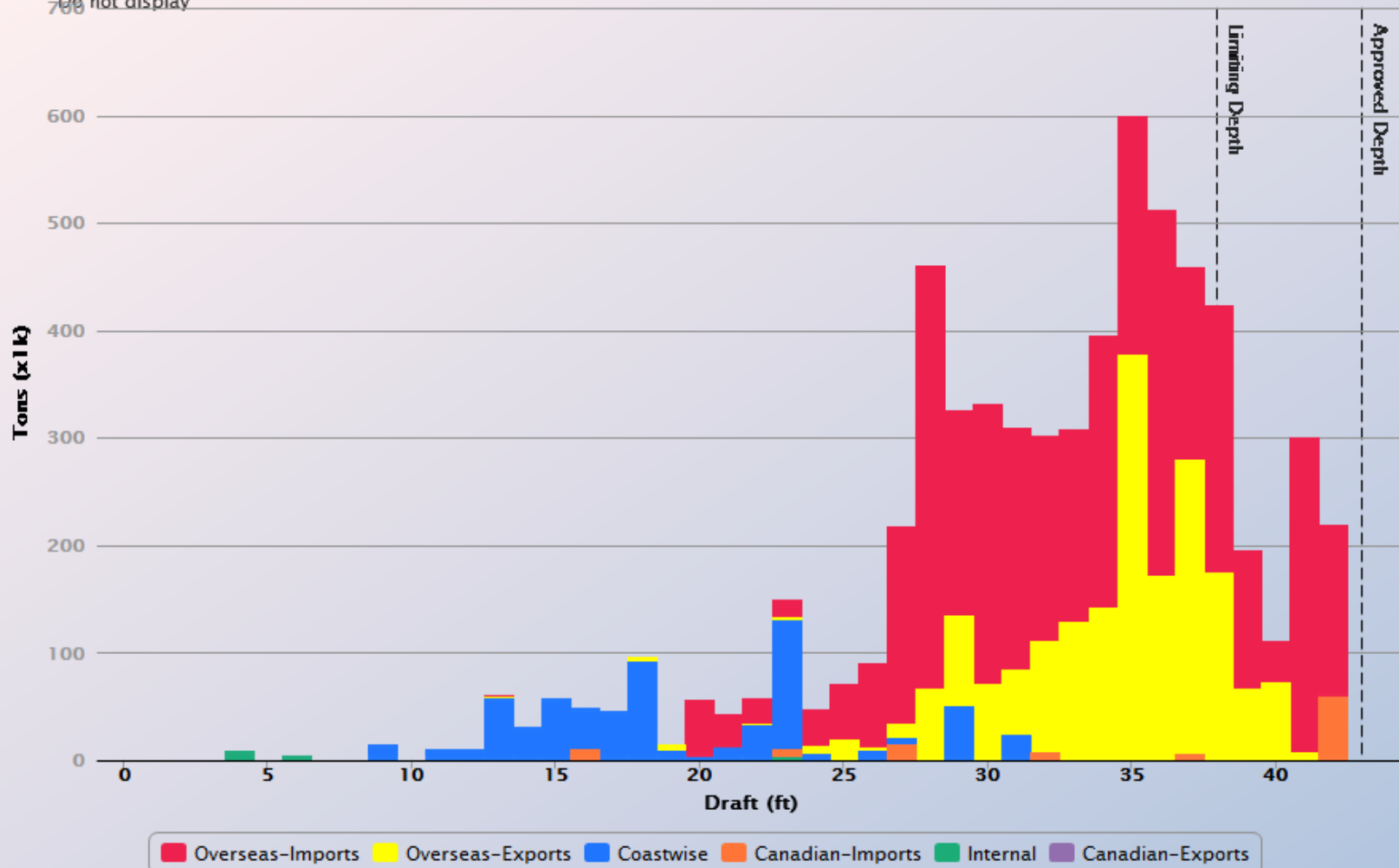
WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (48)

Axis Controls

FlowDetail Reach Traffic Draft vs. Tons for AllShipments

FlowDetail WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485866) Reach Traffic Draft vs. Tons for AllShipments

700 not display

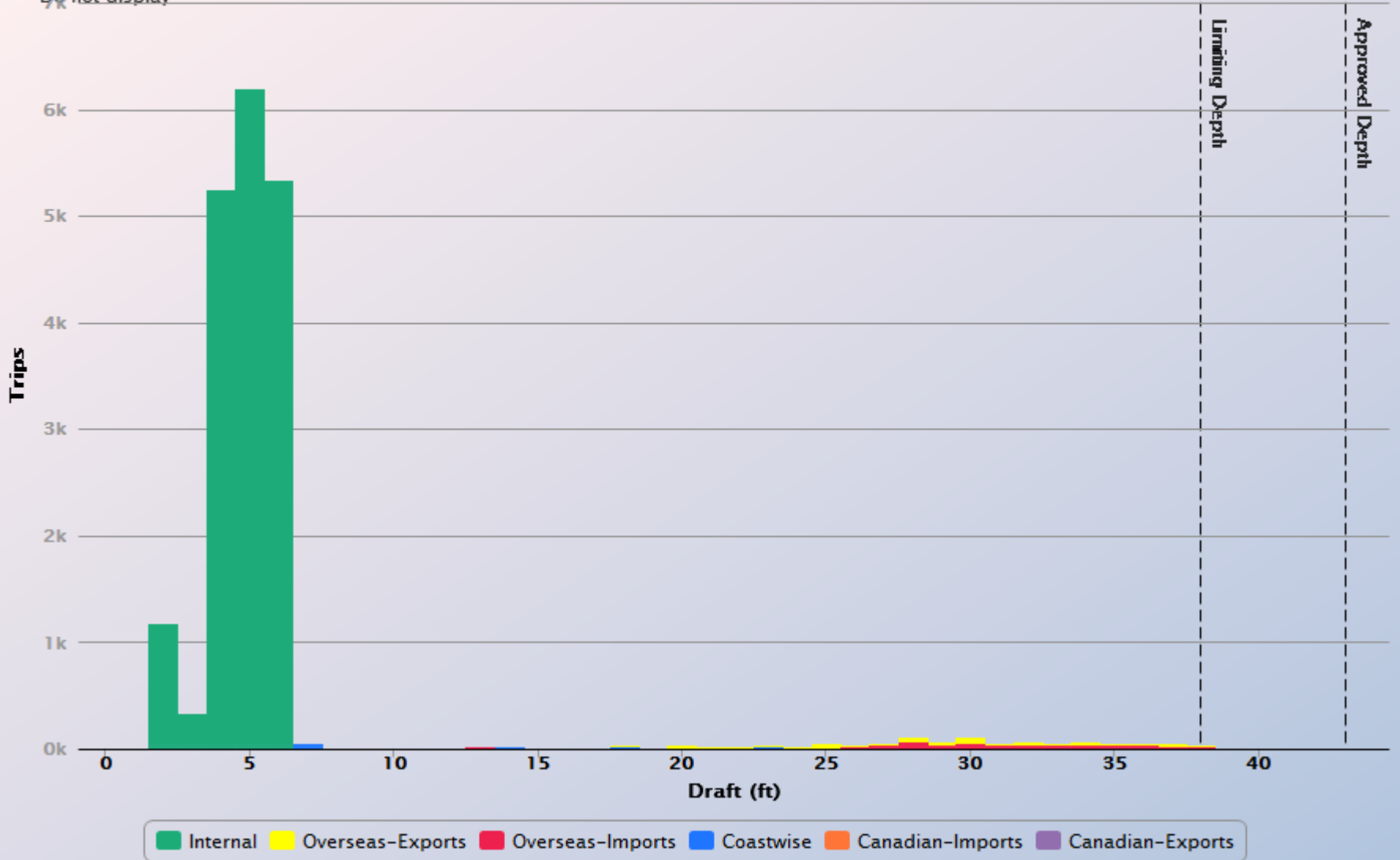


# Flow tab, Reach level graph

FlowDetail Reach Traffic Draft vs. Trips for AllShipments

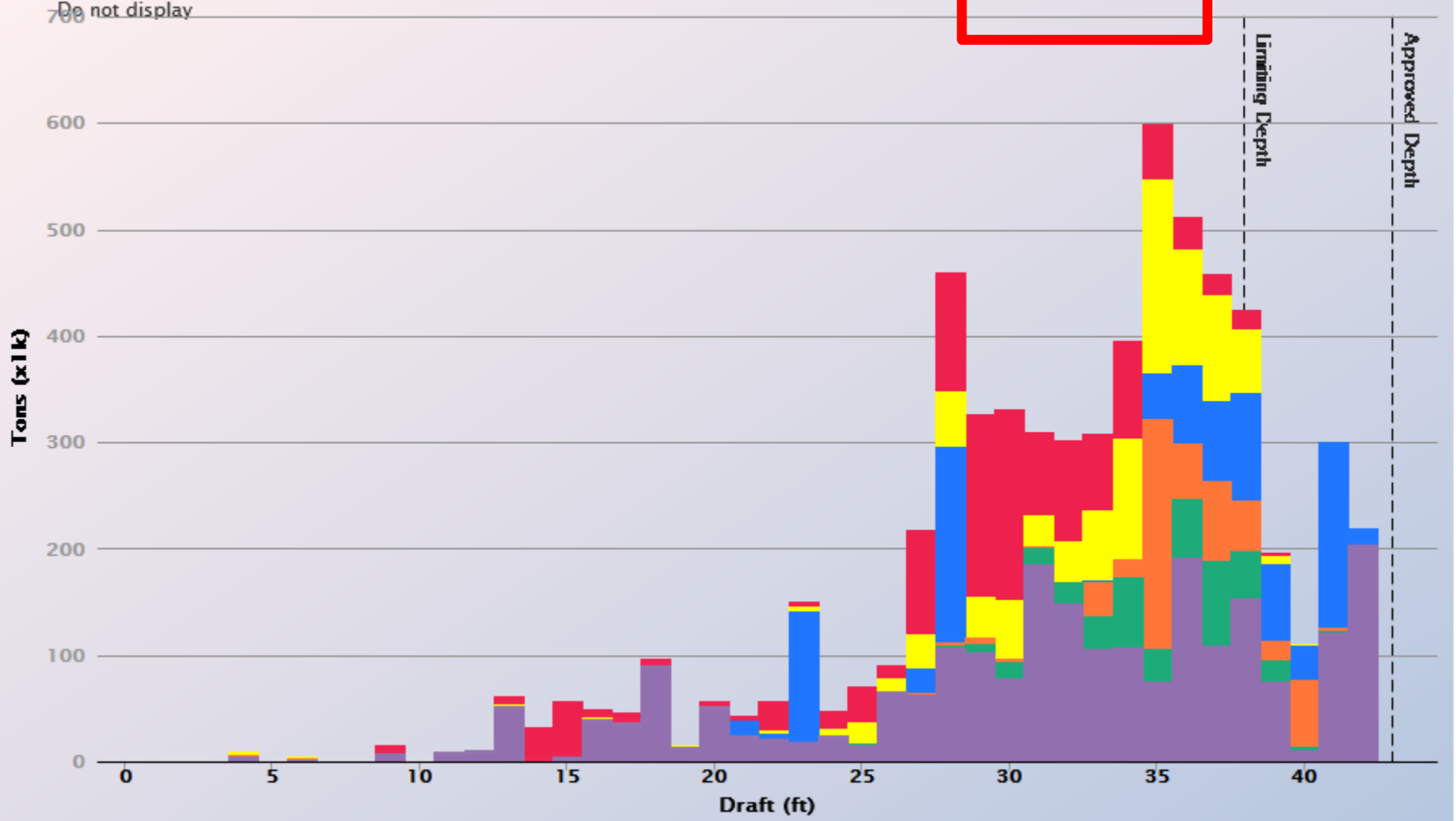
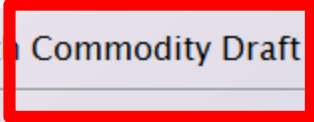
FlowDetail WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485866) Reach Traffic Draft vs. Trips for AllShipmen

Draft not display



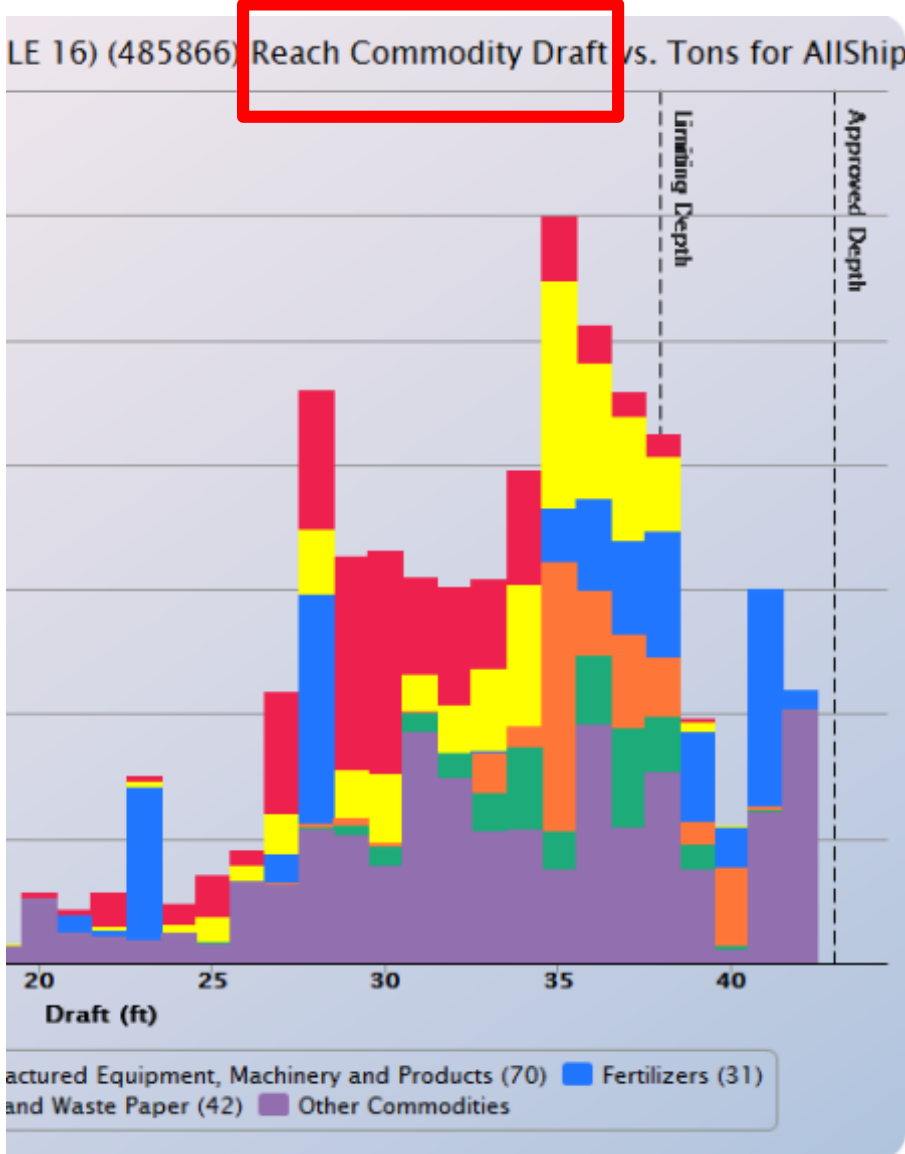
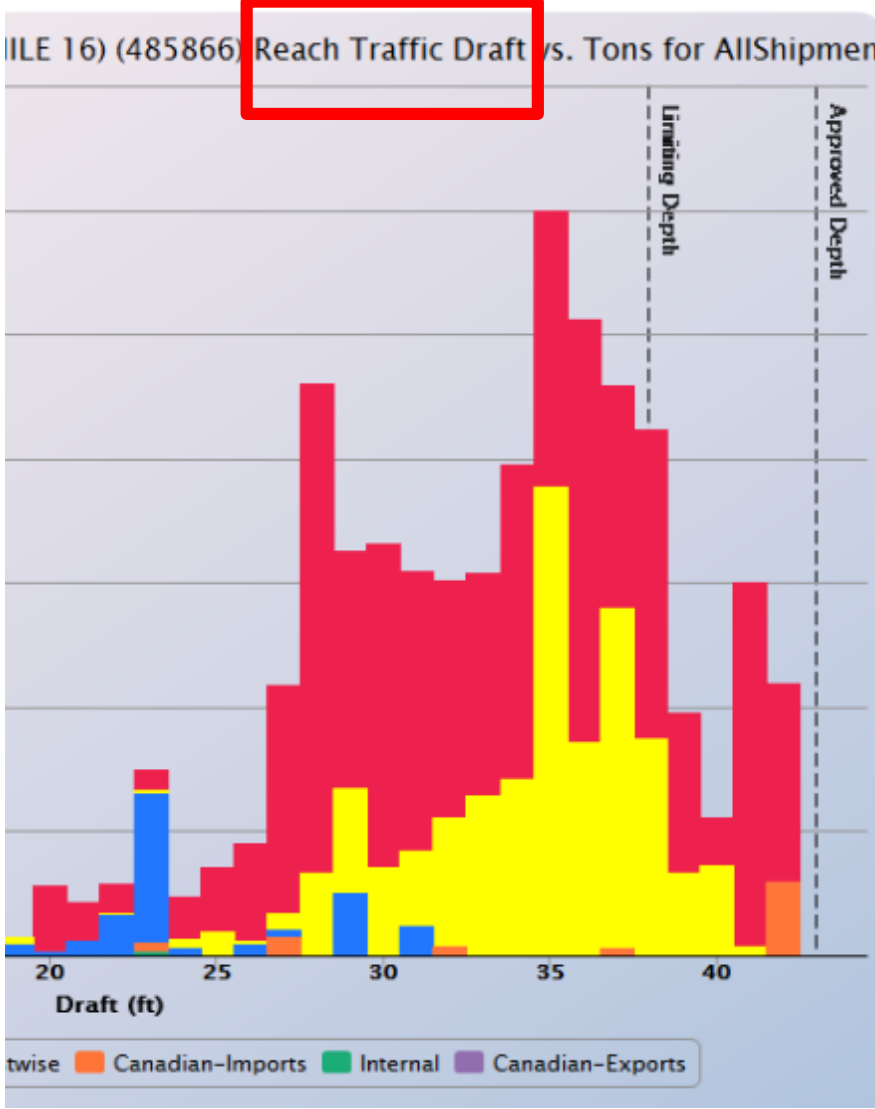
# Flow tab, Reach level graph

FlowDetail WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485866) Reach Commodity Draft vs. Tons for AllShip



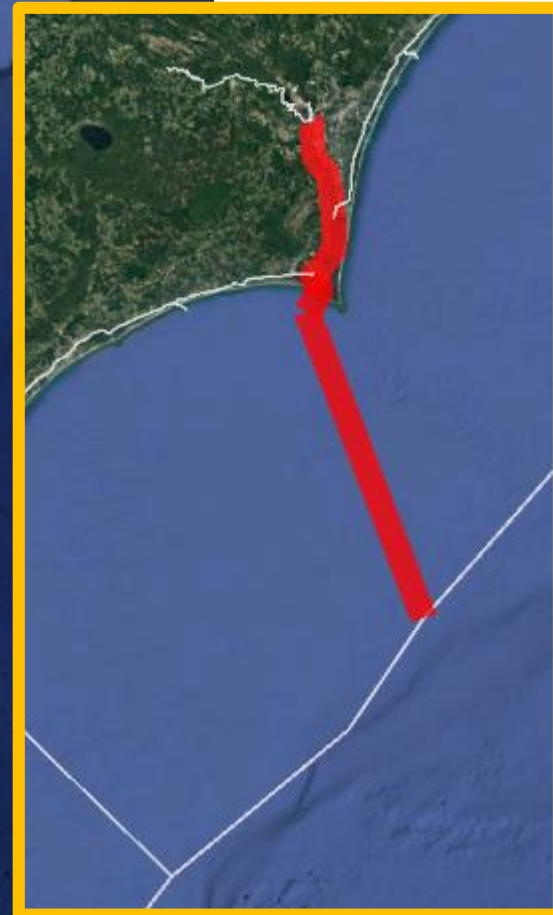
- Other Chemicals and Related Products (32)
- All Manufactured Equipment, Machinery and Products (70)
- Fertilizers (31)
- Forest Products, Lumber, Logs, Woodchips (41)
- Pulp and Waste Paper (42)
- Other Commodities

# Graphs: Traffic draft & Commodity draft



# Flow map: Wilmington Harbor

Showing traffic that flowed to, from, or through the Wilmington Harbor project.





# How to view and use **Details Tabs**

- From a Rankings or Flow table users can click on an individual row (record) to view details about that record.
- This new information will be visible in a Details tab that appears to the right of the existing Rankings, Rollup, Flow tabs.

# For all tables – click on a row to open a new details tab for that row

Rankings Rollup Flow Work Package **HONOLULU HARBOR, HI (MILE 00 TO MILE 40) (896700) Reach Ranking**

Order Grid By:  Trips  Tons  Dollars

**Reach Ranking - Click Reach Row in Grid for Details**

Drag a column header and drop it here to group by that column

Group	Name	Tons (x1k)
Honolulu Harbor	HONOLULU HARBOR, HI (MILE 00 TO MILE 40) (896700)	14,612.63
Barbers Point Harbor	BARBERS POINT CHANNEL, HI (MILE 00 TO MILE 40) (897100)	9,622.63
Deepwater (Molokai Island)	MOLOKAI ISLAND SPINE, HI (MILE 09 TO MILE 18) (889000)	8,109.84
Deepwater (Molokai Island)	MOLOKAI ISLAND SPINE, HI (MILE 19 TO MILE 24) (895800)	8,109.84
Deepwater (Molokai Island)	MOLOKAI ISLAND, HI-OAHU ISLAND, HI SPINE	8,109.84

Page 1 of 4

# Detail tab will have tables and graphs

Reach - Click Tab Below for Desired Analysis

Rankings
Rollup
Flow
Work Package
WILMINGTON HARBOR, NC (MILE 00 TO MILE 16) (485866) Reach Flow

**Reach FlowDetail - Traffic**

Group by:  Draft  System  Vessel Type  Traffic

Order Grid By:  Trips  Tons  Dollars
 Update

Export to Excel
Export to PDF

Drag a column header and drop it here to group by that column

Year	Traffic	Tons (x1k)	Dollars (x1k)	Trips
2014	Overseas-Imports	3,769.080	\$6,424,866.397	494.000
2014	Overseas-Exports	1,871.772	\$3,958,648.163	503.000
2014	Coastwise	641.442	\$255,958.449	161.000
2014	Canadian-Imports	108.265	\$29,250.190	16.000
2014	Internal	18.179	\$20,911.040	18,260.000
2014	Canadian-Exports	0.000	\$0.000	10.000
		<b>6,408.74</b>	<b>\$10,689,634.24</b>	<b>19,444.00</b>

# Summary

CPT offers you:

- Reach-level specificity
- Ranking, Rollup, and Flow capabilities
- Results as tables or graphs
- A way to easily query WCSC data
- Ability to export results to Excel or GoogleEarth for further analysis

These slides are only an introduction to the basic capabilities of CPT. To learn more about CPT please consult the other modules, the User Manual, or email us with any questions.

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