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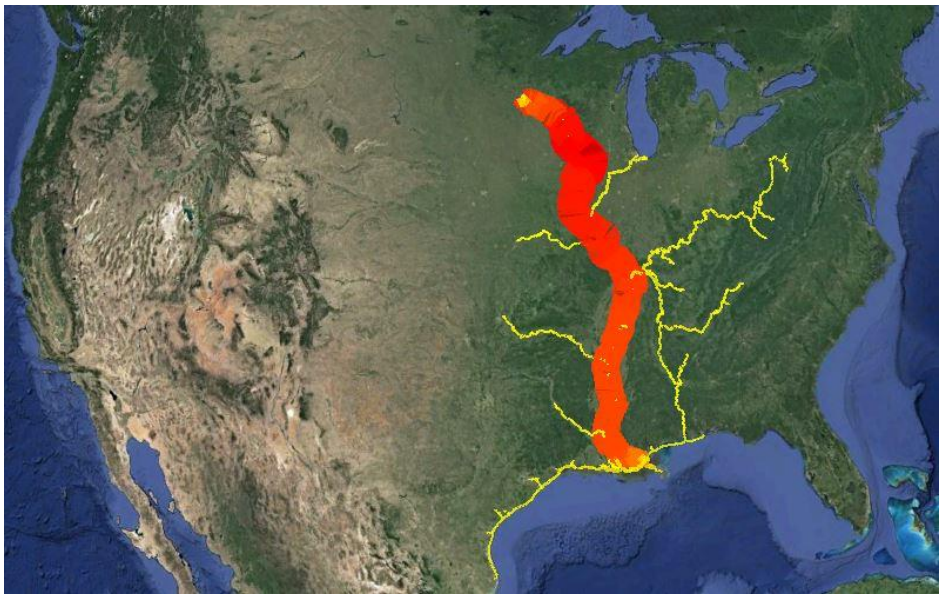
Channel Portfolio Tool: User Manual [DRAFT]

Version 1.0

Marin M. Kress, Kenneth N. Mitchell

September 2016



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Final report [Version 1.0]

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Abstract: The Channel Portfolio Tool (CPT) is a decision-support tool designed to help USACE operations personnel analyze the extent to which maintained navigation channels are used by commercial shipping. Analyses can be conducted for individual channels, or for a grouping of channels treated as a single project. Additionally, USACE planning personnel can use CPT to extract historical data concerning region-to-region commodity movements and consolidated statements of traffic for arbitrary listings of projects and channels. Key functionalities of CPT include:

1) The ability to apply multiple filters to query data published by the USACE Waterborne Commerce Statistics Center (WCSC) to get detailed results at the individual waterway reach level.
2) The ability to set hypothetical shoaling levels to a group of reaches or projects and identify what historical traffic would be affected by such shoaling.
3) The ability to quickly produce tables and visualizations displaying historical trends in commodity movements over time, space, commodity type, and potential shoaling scenarios.
4) The ability to evaluate multiple potential work packages.
5) The ability to export query results to MS Excel and GoogleEarth.

[Insert a 200-word summary here and use exactly the same one in Block 14 of the SF 298.]

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Report Documentation Page

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1 Registration Information For New Users

Users must download and sign TWO non-disclosure waiver forms and register online before gaining access to CPT.

Form 1: WCSC non-disclosure document

- Electronically sign. Then save and send as an attachment to CPT@usace.army.mil. If electronic signature capability is not available then print the document, manually sign it, scan it and send as an attachment to CPT@usace.army.mil

Form 2: Census non-disclosure document

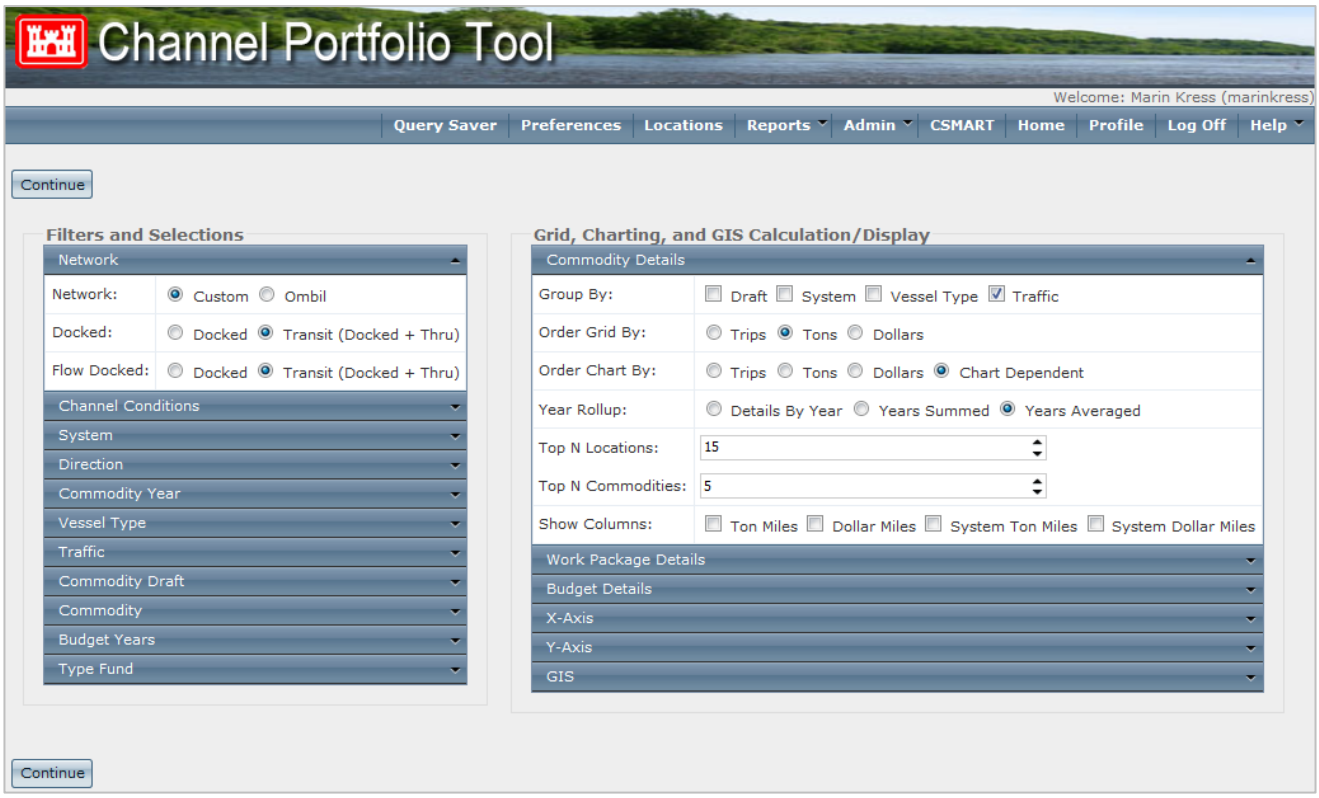
- Read and **print out** the Census non-disclosure document. **Manually sign the document**, scan it, and send as an attachment to CPT@usace.army.mil. This document MUST contain a manual signature.

Online on the CPT homepage:

- After selecting the "Register" tab, fill out all required registry information and select the "Register" button at the bottom of the screen. Once the registration and the non-disclosure forms are received and processed you will receive an email confirming registration.

Note: Once per year, on your first use after January 1st, you will be required to re-sign and re-submit **both** of the Non-Disclosure agreements before using CPT.

After you are registered and able to login you will be greeted with this Preferences page.



This image shows the basic filters that CPT users can employ to run detailed queries. The rest of this document describes these filters in more detail.

If you are interested in setting up a CPT webinar tutorial based on your specific workflow needs or questions please contact us.

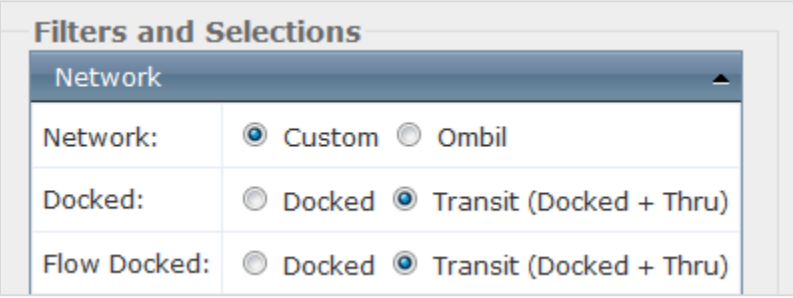
CPT Program Manager
Dr. Ned Mitchell, Kenneth.N.Mitchell@usace.army.mil

2 Filters and Selections

Network

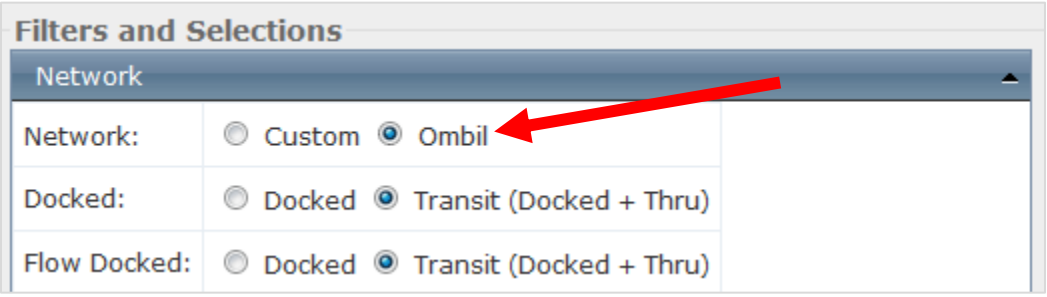
This filter allows users to select the channel network. Most users will use the default choices for this filter unless they are specifically interested in examining historical budget data. [[NEED TO add DOCKED and FLOW DOCKED explanations in this section]]

The default choices are Network: Custom, Docked: Transit, and Flow Docked: Transit.



Most users will keep the default settings for this filter.

Specialized users interested in examining budget data must select the OMBIL option. Relevant budget settings will be described below in the **Budget Years** and **Type Fund** filter sections.

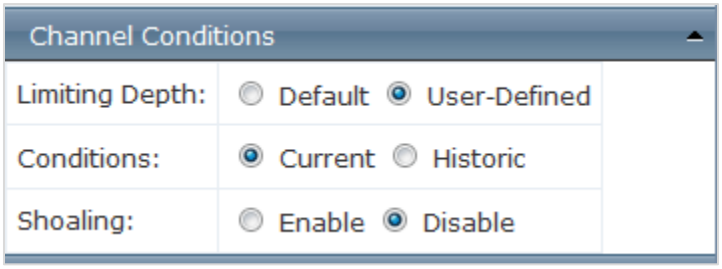


Channel Conditions

This filter allows users to examine the impact of channel depth on traffic disruptions. The main elements are:

- Limiting Depth - As reported by Navigation Managers (historical data) or eHYDRO. If no other source of data is available the limiting depth value will default to the deepest vessel draft for the year.
- Conditions - Maintained channel depth can vary over time, this filter allows for shoaling impacts to be depth-adjusted on a rolling basis using historic data. This filter can be set to reflect either current or historical conditions
- Shoaling - Level of shoaling above the recorded limiting depth.

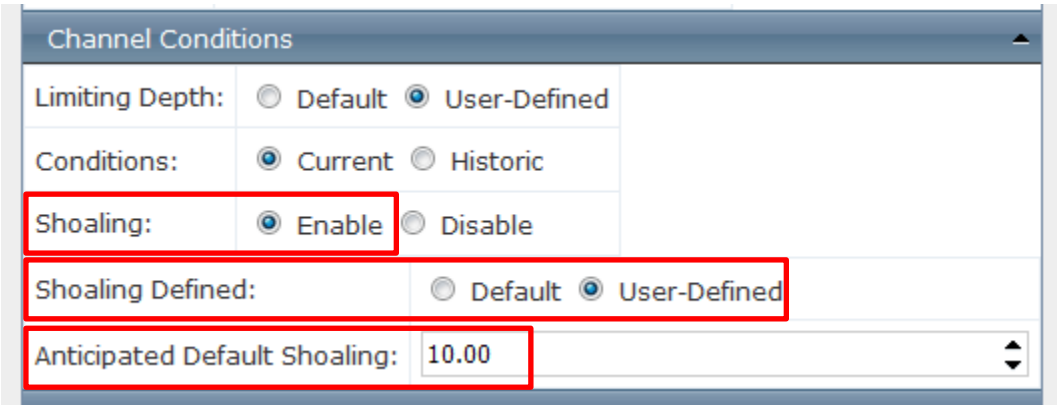
Default settings for Channel Conditions filter are shown below.



Users should keep the default selections unless specifically interested in shoaling impact scenarios.

To explore the impacts of hypothetical shoaling, you must:

- set the Shoaling option radio button to 'Enable'
- set the Shoaling Defined radio button to 'User-Defined'
- set a numeric shoaling level in the Anticipated Default Shoaling field. The picture below shows selections for hypothetical 10ft shoaling.

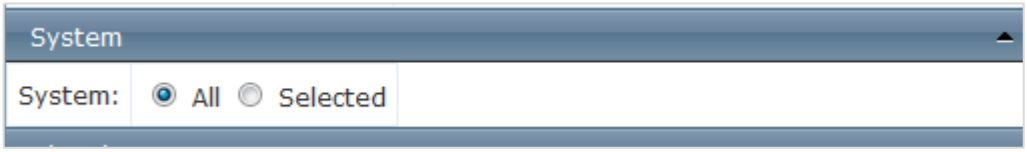


System

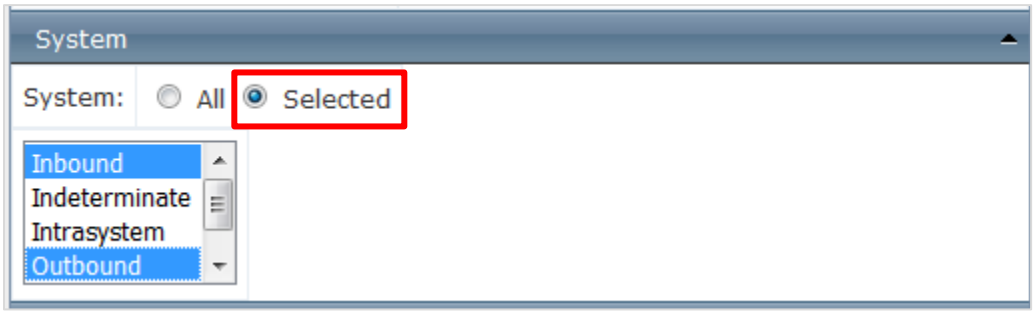
This filter allows users to specify certain types of system traffic:

- Inbound – Cargo that enters a waterway and will offload there
- Indeterminate – Unknown, potentially because of missing data
- Intrasystem – Traffic that gets on and off the water within the location areas selected
    - Users select the specific area under the LOCATIONS page
- Outbound – Traffic that is entering the water and leaving the area
- Through – Traffic that is passing through a channel, not stopping at a port

Default setting is 'All' system types.



To include a subset of specific traffic types in your query click the radio button 'Selected' and press the **Ctrl** key to select multiple options from the list

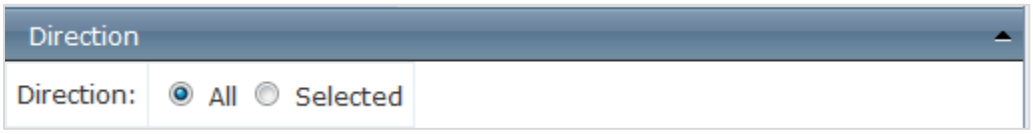


Direction

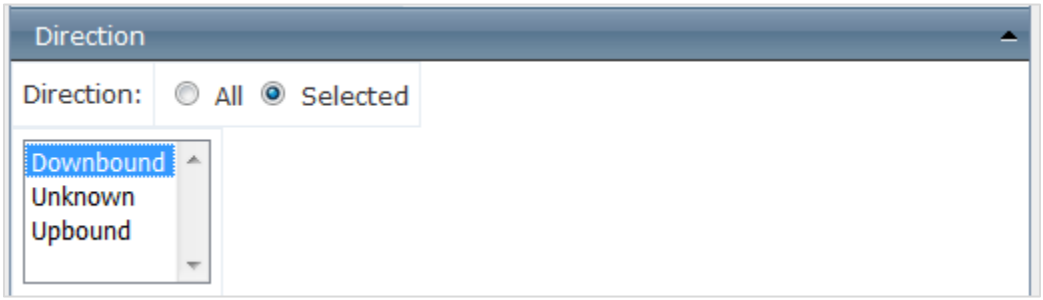
This filter allows users to select traffic moving in specific system-defined directions, this filter is most relevant to inland navigation.

- Downbound – This designation is specific mostly to rivers with an obvious flow direction
    - Some ports use the upbound/downbound designation for traffic control within a port area.
- Unknown – Traffic moving in an unknown direction
- Upbound – Traffic moving upriver

The default choice is 'All' traffic directions.



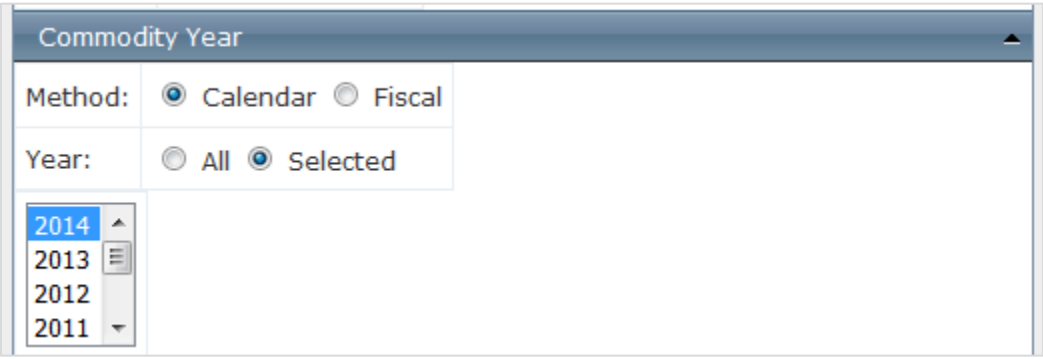
User can select specific direction for their query. For example, users interested in Downbound traffic along a river would click the radio button for 'Direction: Selected' and then click on Downbound.



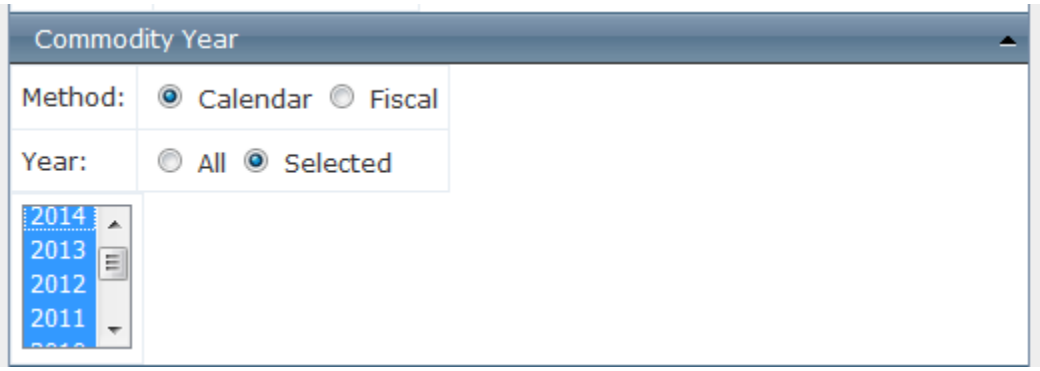
Commodity Year

This filter allows users to select either calendar or fiscal years for their analysis. The available data in CPT is limited to the most recent seven years of published data. There is normally a 2-year lag for WCSC data, i.e., in 2016 the most recent available data is from 2014.

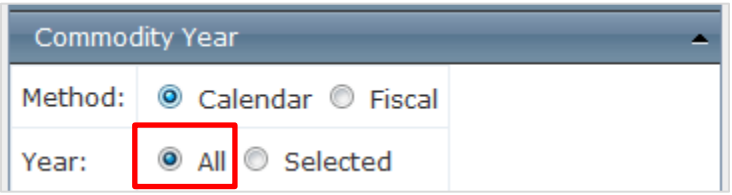
The default setting will be 'Method: Calendar' and 'Year: Selected' with the most recent year of data in the system and only that year as the selection.



Users can select one year or multiple years (**Ctrl** key and click on years).



To select all years available click the radio button to 'All.'

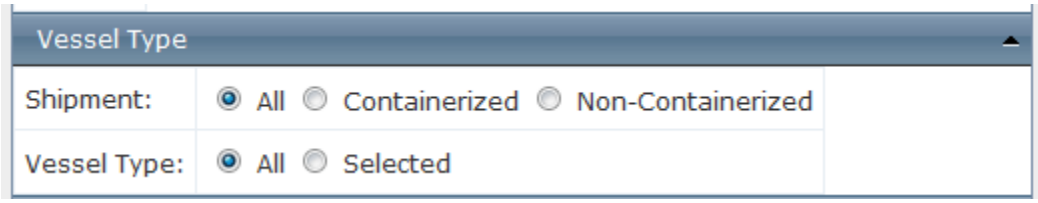


Vessel Type

This filter allows users to filter based on shipment type and/or vessel type. Available filter options include:

- Shipment
  - Containerized (shipments in 20-ft equivalent units (TEUs), aka 'boxes')
  - Non-containerized (carrying bulk cargo such as coal, ore, grains, etc)
- Vessel Type
  - Dry Cargo Barge
  - Liquid Barge
  - Other (Cranes, etc.)
  - Rafted Logs
  - Self-Propelled Dry
  - Tanker
  - Towboat

The default choice is all shipments and all vessel types.



The Vessel Type filter allows the user to select multiple vessels for inclusion in the analysis. To learn more about vessel types that might be relevant to your inquiry review information on the following page from the USACE Navigation Data Center titled 'Explanation of Vessel Type, Construction and Characteristics (VTCC Code).

Note: RO-RO = Roll on/Roll off cargo, such as automobiles

Explanation of Vessel Type, Construction and Characteristics (VTCC Code)

Construction:

A	Steel	D	Fiberglass
B	Wood	E	Other
C	Aluminum	F	Unknown

Type: 1 Self-Propelled, Dry Cargo

Characteristics:

02	Crewboat / Supply / Utility Vessel	10	Vehicle Carrier
03	General Cargo Freighter	11	Passenger Carrier
04	Break Bulk / RO-RO Carrier	12	Combination Passenger and Cargo
05	RO-RO Vessel	13	Ferry
06	Bulk Carrier	14	Railroad Car Ferry
07	Containership	15	Lash Vessel
08	Partial Containership	16	Excursion / Sightseeing Vessel
09	Container / Vehicle / Trailer (RO-RO) Carrier		

Type: 2 Self-Propelled, Tanker

Characteristics:

20	Petroleum / Chemical Carrier	23	Liquid Gas Carrier
21	Chemical Carrier	24	Other Tanker
22	Liquid Bulk Tanker		

Type: 3 Towboat

Characteristics:

35	Pushboat	36	Tugboat

Type: 4 Non-Self-Propelled, Dry Cargo

Characteristics:

40	Open Hopper Barge	48	Covered Dry Cargo Barge
41	Covered Hopper Barge	49	RO-RO Barge
42	Carfloat (Railroad Car Barge)	50	Container Barge
43	Flat / Deck Barge	52	Lash / Seabee Barge
44	Pontoon Barge	90	Convertible Barge
47	Open Dry Cargo Barge	99	Other

Type: 5 Non-Self-Propelled, Tanker

Characteristics:

70	Liquid Cargo Barge (Single Hull)	73	Liquid Cargo Barge (Double Bottom Only)
71	Liquid Cargo Barge (Double Hull)	74	Other Liquid Cargo Barge, Not Elsewhere Included
72	Liquid Cargo Barge (Double Sided Only)		

Type: 6 Other

Characteristics:

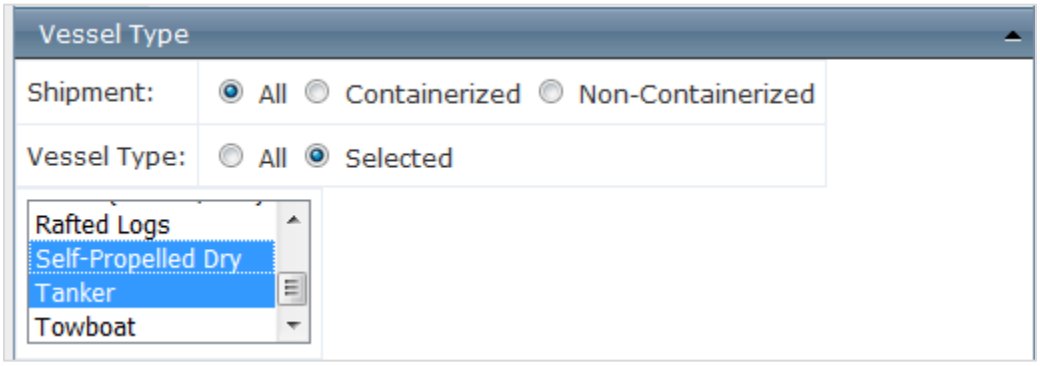
01 Undefined

This page excerpted from "Waterborne Transportation Lines of the United States. Calendar Year 2014, Volume 1 - National Summaries." Compiled under supervision of the USACE Institue for Water Resources, published by the Navigation Data Center.

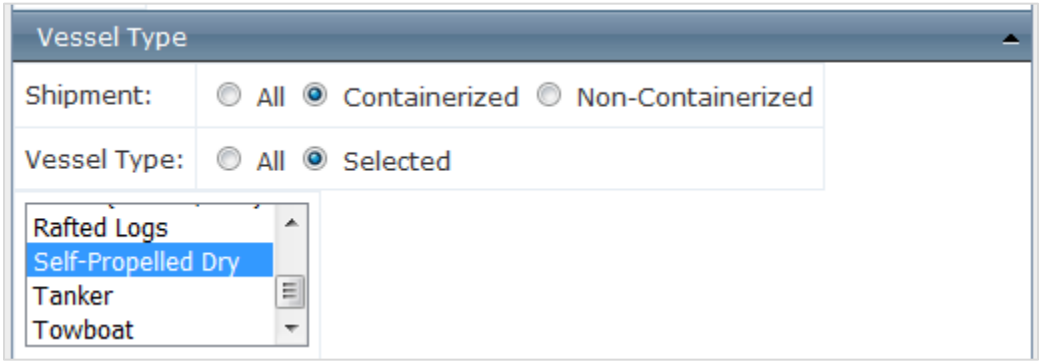
[Vessel Type Filter continued]

Users interested in deep draft navigation commonly limit their selection to the following vessel types: ‘Self-Propelled Dry’ and ‘Tanker’.

With the configuration shown below, SHIPMENT radio button set to ALL, this selection covers three main deep draft navigation vessels: Tanker, Self-Propelled Dry (dry bulk, non-containerized), and Self-Propelled Dry (containerized).



Users interested in only container vessels would select CONTAINERIZED radio button and SELF-PROPELLED DRY from the list.

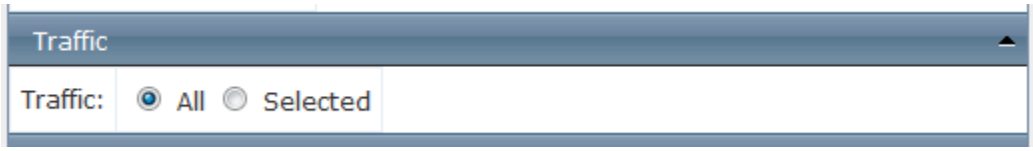


Traffic

This filter allows users to examine shipments based on their origin or destination, categories include:

- Canadian-Exports – This traffic is exclusive to U.S. Exports to Canada.
  - *This traffic NOT included in Overseas-Exports categories*
- Canadian-Imports – This traffic is exclusive to U.S. Imports from Canada.
  - *This traffic NOT included in Overseas-Imports categories*
- Coastwise – from one U.S. port to another via deepwater
- Ferry – an historical category, no longer used
- Internal – Barge traffic on rivers, but also for certain areas like the GIWW and Long Island Sound that might be considered internal.
- Intra-Territory - involving Puerto Rico and the U.S. Virgin Islands
- Intransit-Exports – a catch-all category
- Intransit-Imports
- Lakewise – Domestic traffic between U.S. Great Lakes ports
- Local – Traffic within a port
- Overseas-Exports
- Overseas-Imports
- Unknown

The default selection for this filter is ALL traffic.

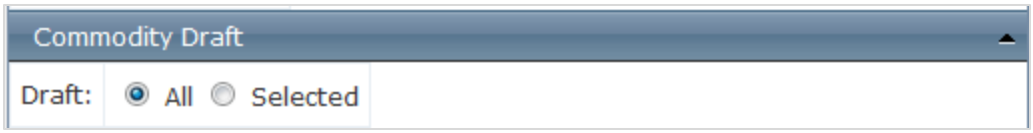


Tip: Users interested in deep-draft tonnage commonly select the following three traffic types: Coastwise, Overseas-Exports, and Overseas-Imports.

Commodity Draft

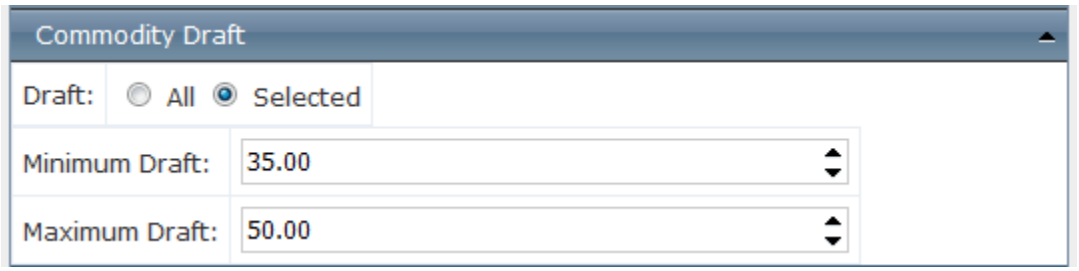
This filter allows users to specify a vessel draft range in the query.

The default selection is ALL vessel drafts across all locations included in the query.



Users can refine their analysis by specifying a Minimum Draft and Maximum Draft.

The screenshot below shows the radio button choice for Draft: Selected and user-specified Minimum Draft = 35ft and Maximum Draft 50ft.

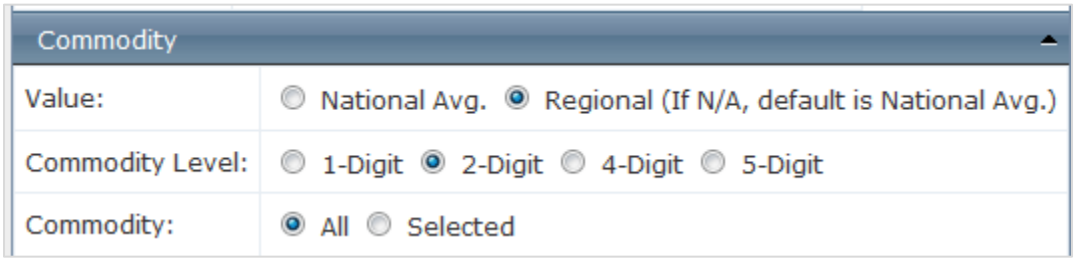


Commodity

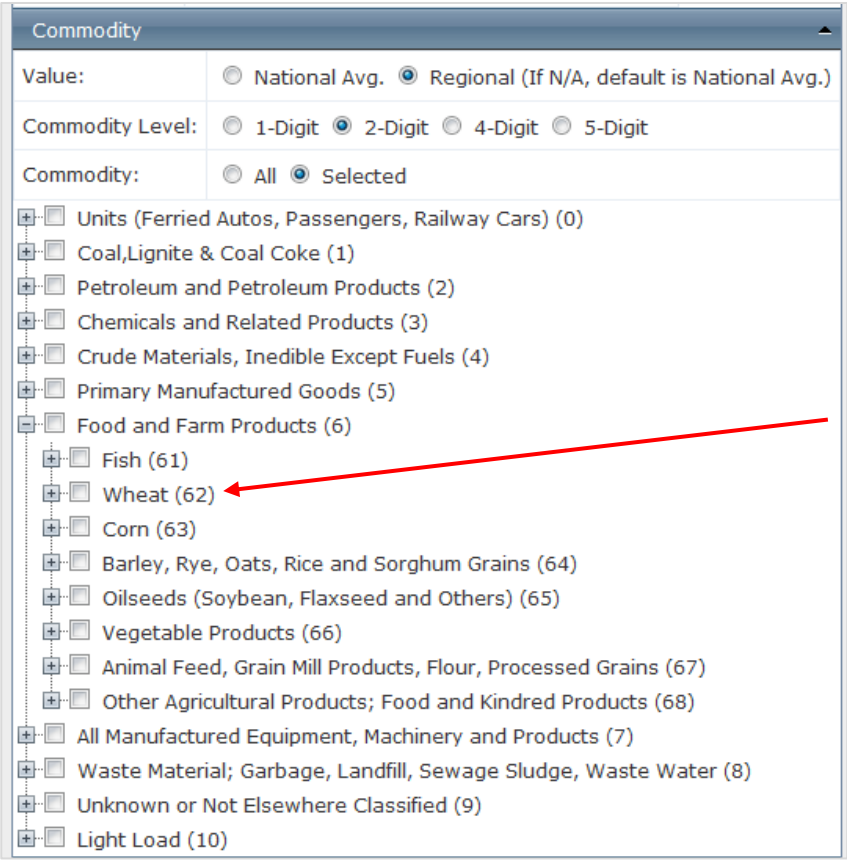
This filter allows users to limit their query to specific commodity groups as defined by Waterborne Commerce Statistics Center (WCSC). A cross-reference file for commodity codes is available at: http://www.navigationdatacenter.us/data/datacomm.htm

The broadest commodity level is 1-Digit specificity, the greatest level of commodity detail included in CPT data is the 5-Digit level.

The default selections are Value: Regional, Commodity Level: 2-Digit, Commodity: All.



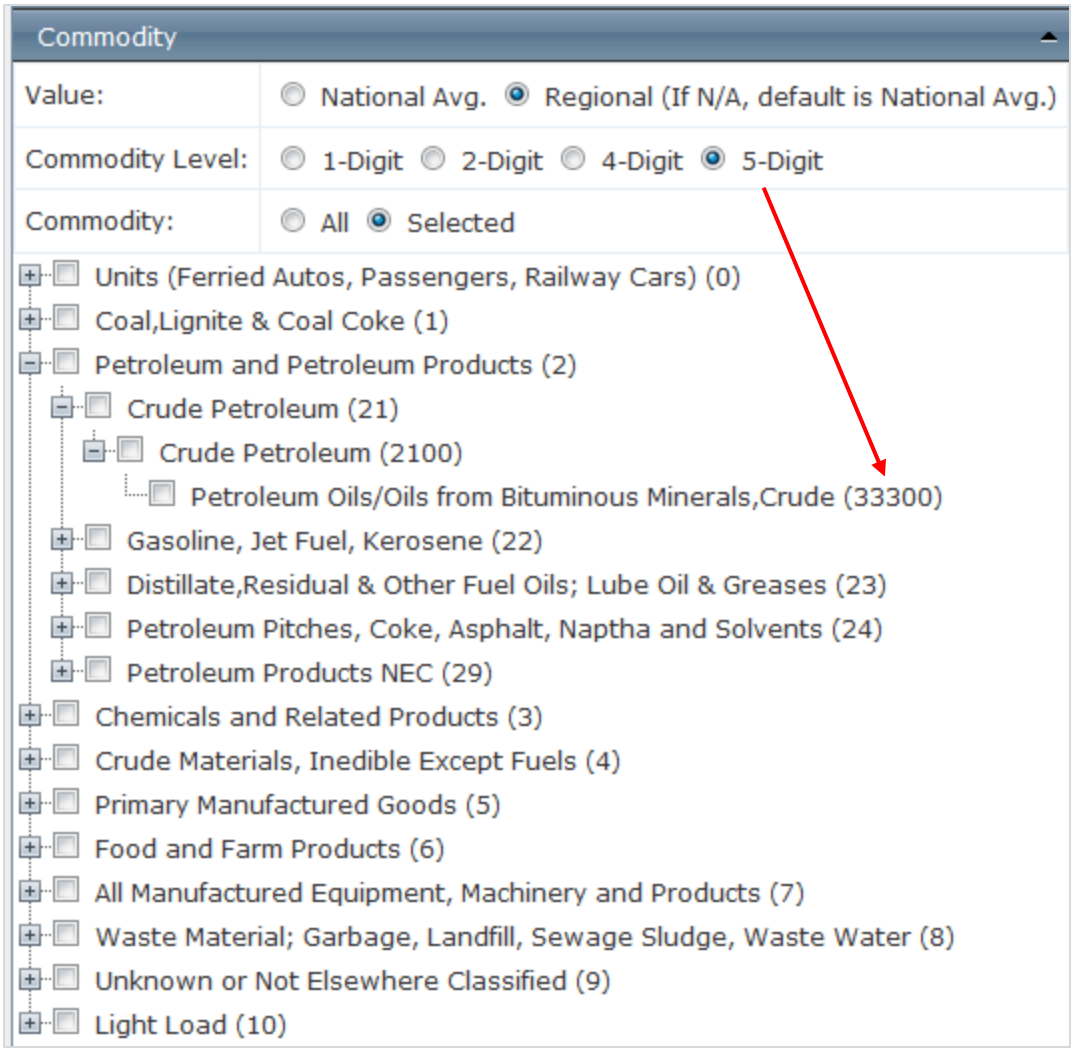
Users should select **Value: National Avg**. for more robust value estimates that will not be skewed by regional differences in prices.



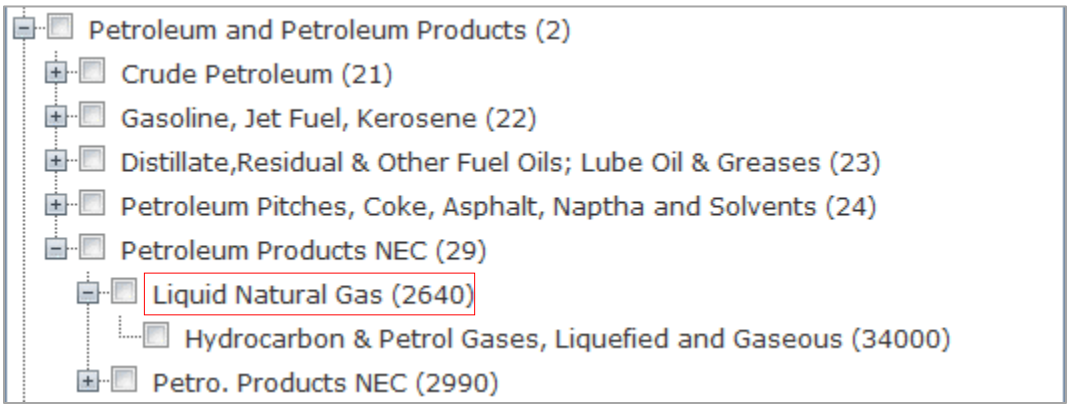
2-Digit level commodity groups are still very broad, such as 'Wheat (62)' which falls within the 1-Digit category of 'Food and Farm Products (6)'.

Sub-lists provide the ability to refine commodity selections to the 5-Digit commodity code level.

E.g., Petroleum Oils/Oils from Bituminous Minerals, Crude (33300)



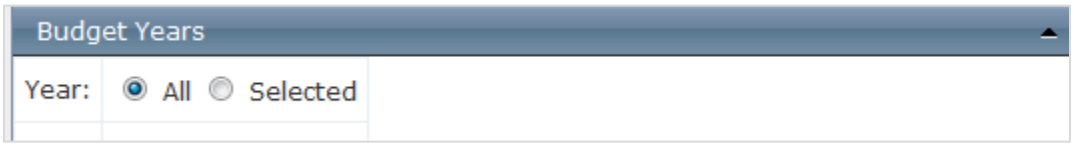
Note: Liquid Natural Gas (2640) is within the Petroleum Products (2) commodity group



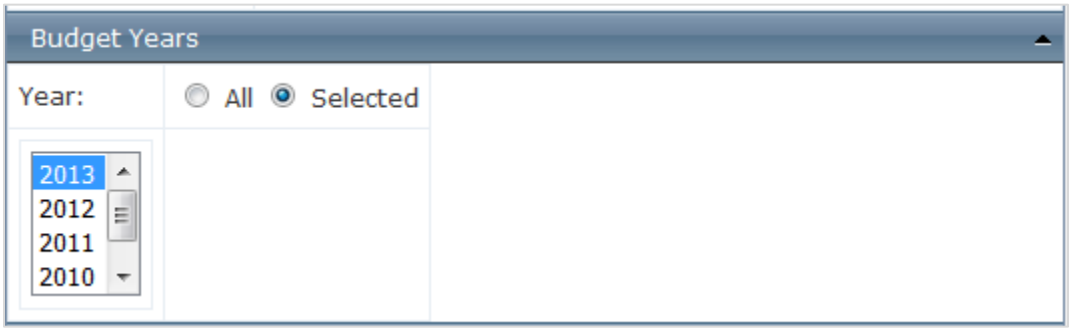
Budget Years

This filter allows users to include information from specific USACE budget years. Data under this filter is not yet on a regular update schedule and may be limited in time.

The default selection is ALL years.



Users can select specific budget years from 2009 to 2013 (available budget years may change in future as CPT is updated with newer budget data).

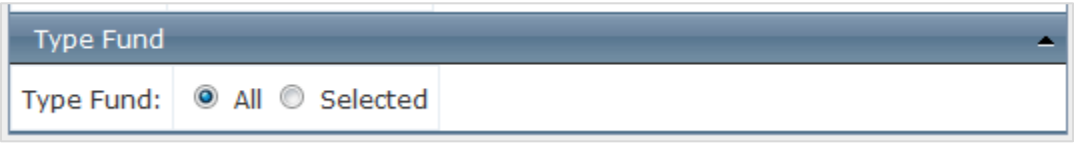


Hold **Ctrl** key while clicking to select multiple years.

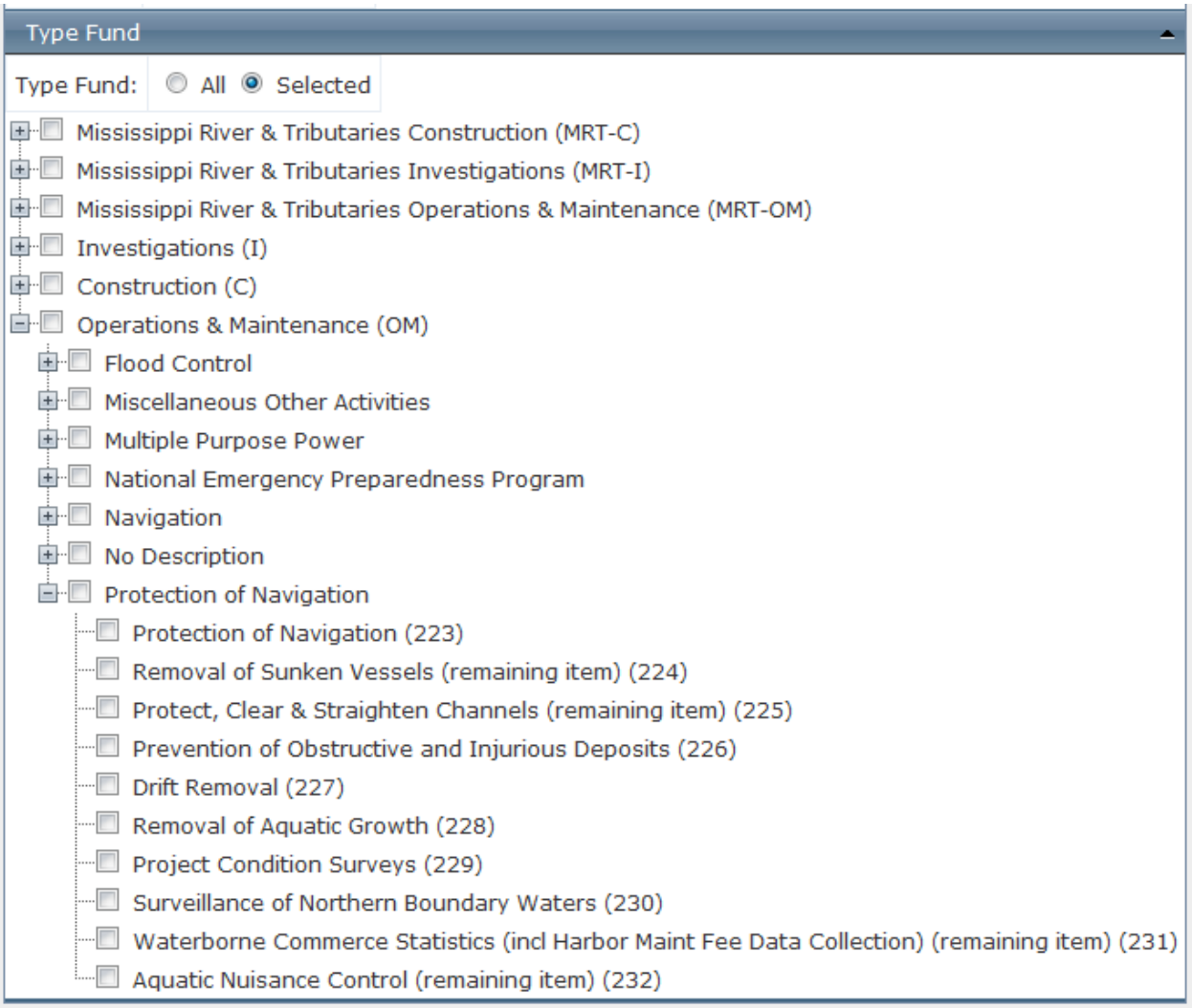
Type Fund

This filter allows users to select different USACE-specific funding types. In order to display results from this filter users must select 'Ombil' under the NETWORK filter group.

The default selection is ALL fund types, shown below.



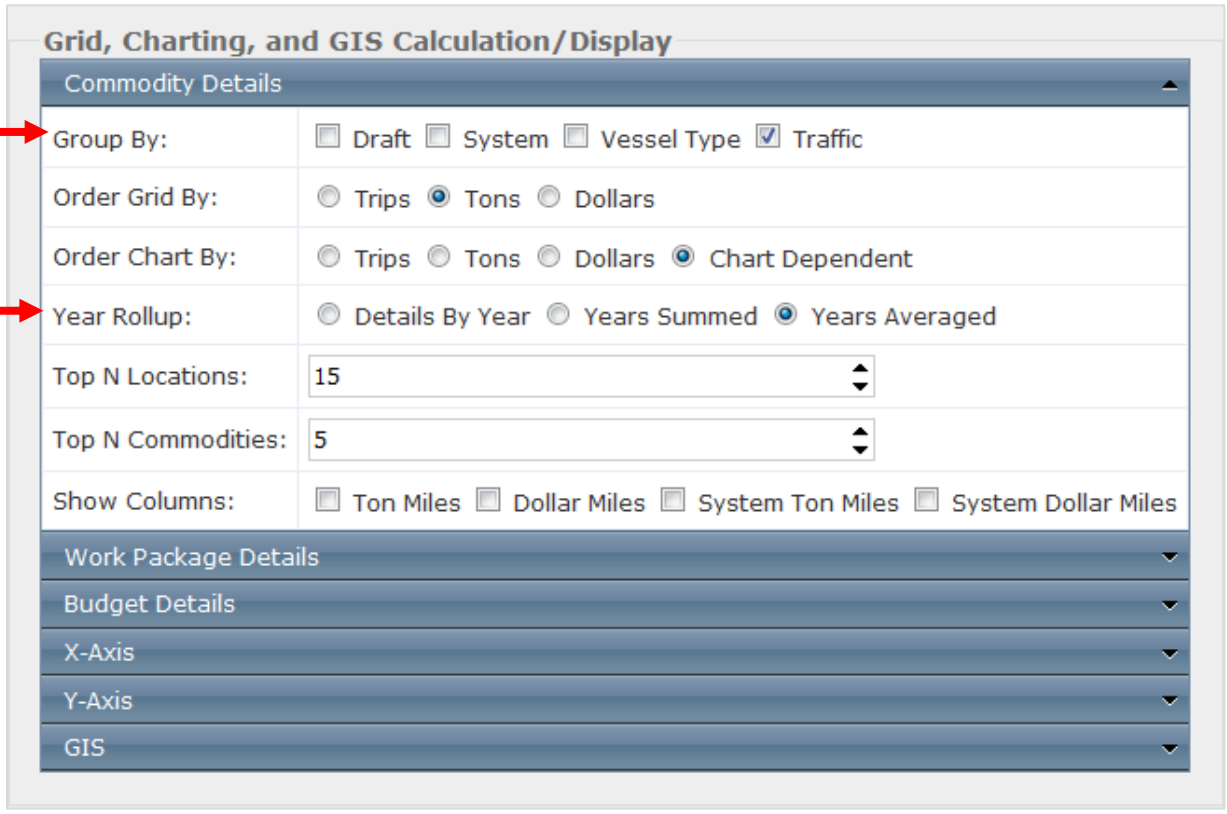
Click the Type Fund radio button to **Selected** and a list of funds will appear. Users can select from multiple sub-lists of budget levels.



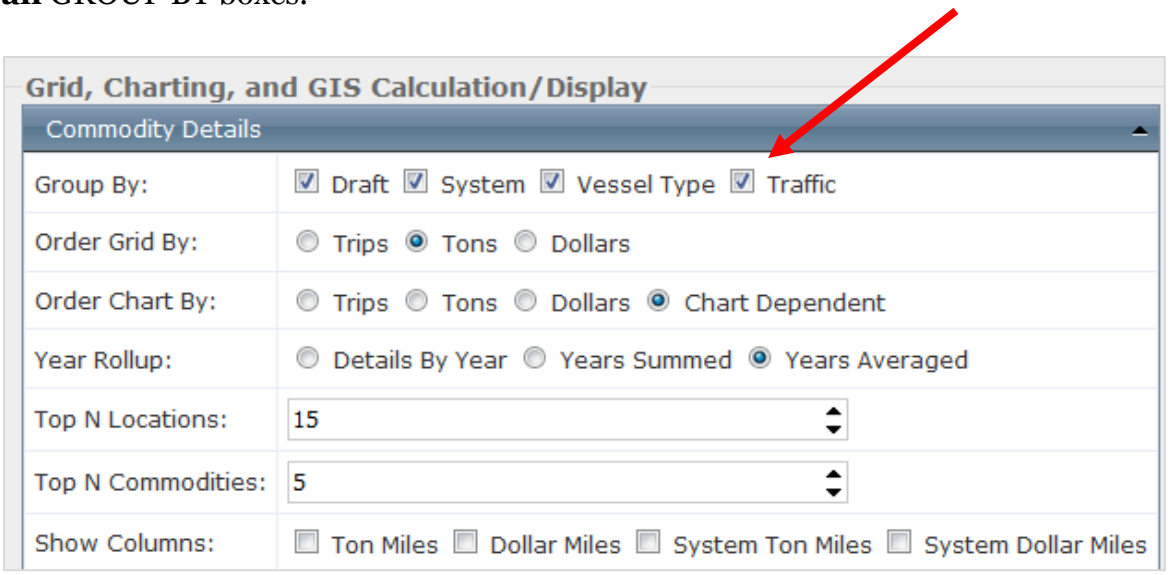
3 Filters for Grid, Charting, and GIS Calculation/Display

This group of filters controls how the query results will be displayed in tables and graphs.

Most users will leave the default settings for these filters. However, within the Commodity Details filter the **Group By** and **Year Rollup** settings should be reviewed.



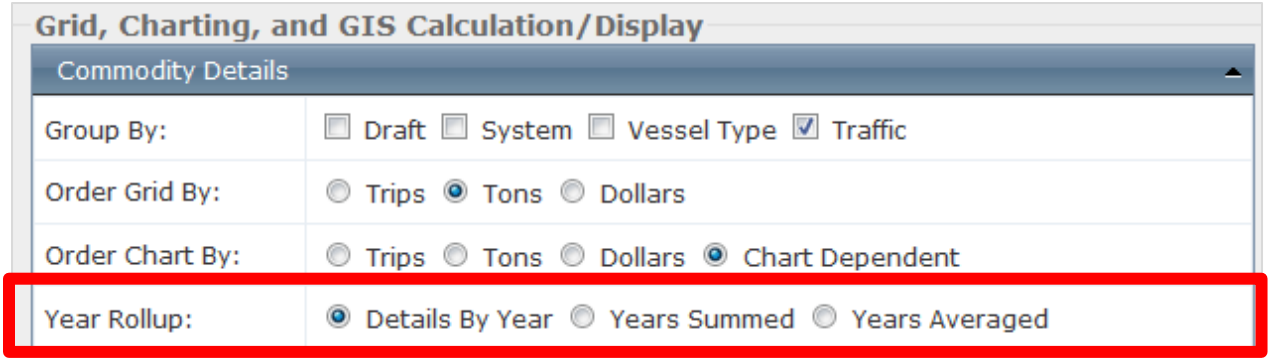
To get the maximum number of output table display combinations select **all** GROUP BY boxes.



If you are selecting multiple years for your query, results can be displayed by only one of the following options:

- Details By Year
- Years Summed
- Years Averaged

You cannot toggle between these options later when looking at results, choose the level of detail that fits your analysis requirements.

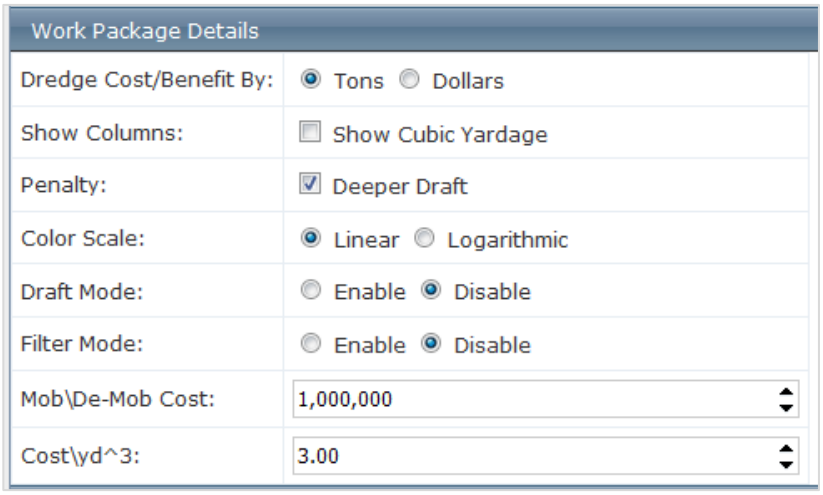


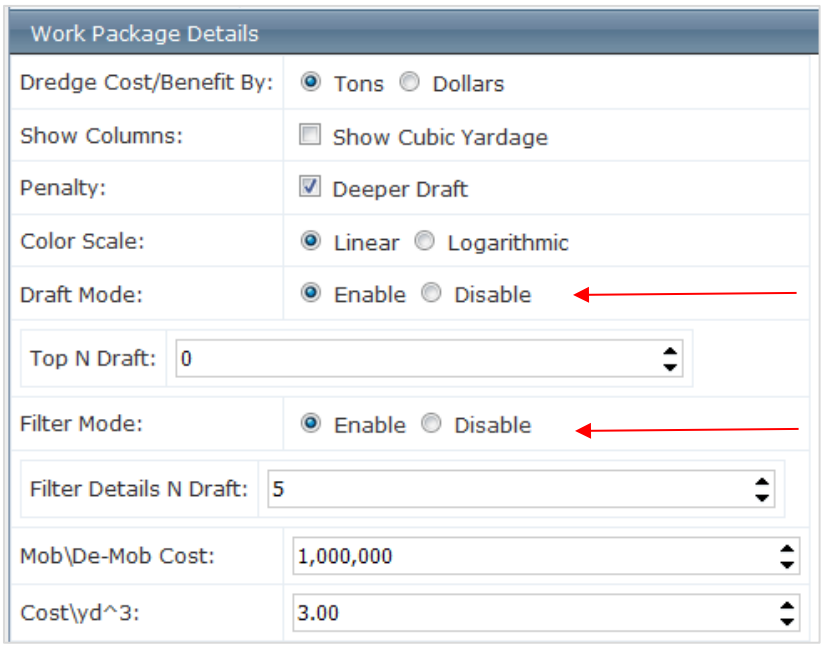
Work Package Details

Note: Functionality of the Work Package Details filter is limited to projects that have received shoaling forecast data from the Corps' Shoaling Analysis Tool (CSAT).
For CSAT information contact Lauren.M.Dunkin@usace.army.mil

This specialty filter is designed for use by navigation project managers interested in comparing the relative cost effectiveness of several potential work packages. Each work package is a collection of reaches and target depths. Users can generate individual work package files from queries and then compare them within CPT.

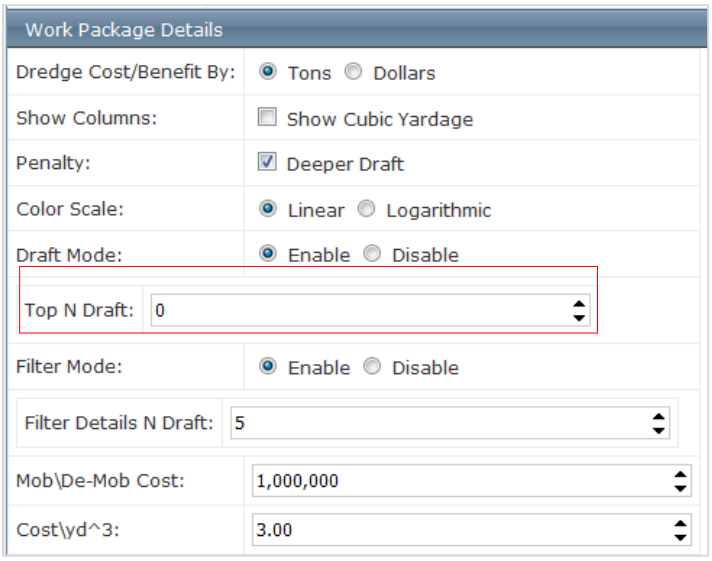
The default settings for the **Work Package Details** filter are shown here.





By enabling the **Draft Mode** and **Filter Mode** settings users can add specificity to their query (further explanation of their functions below).

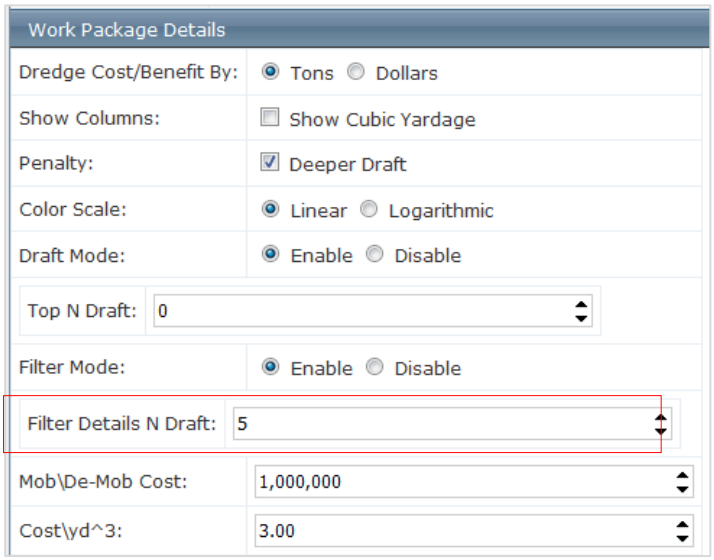
Top N Draft = deepest N feet of channel depth in the work package.



Users can set this to their preference. If users select 10ft, the query will select **only** the deepest 10ft in the work package. If you DO NOT provide a value, the query results will only display tonnage deeper than or equal to the target elevation.

If there are uncertainties, e.g. greater under-keel clearance, users should be more generous in setting the 'Top N Draft' number.

Filter Details N Draft = filters results down to *N ft* window on either side of the target elevation.



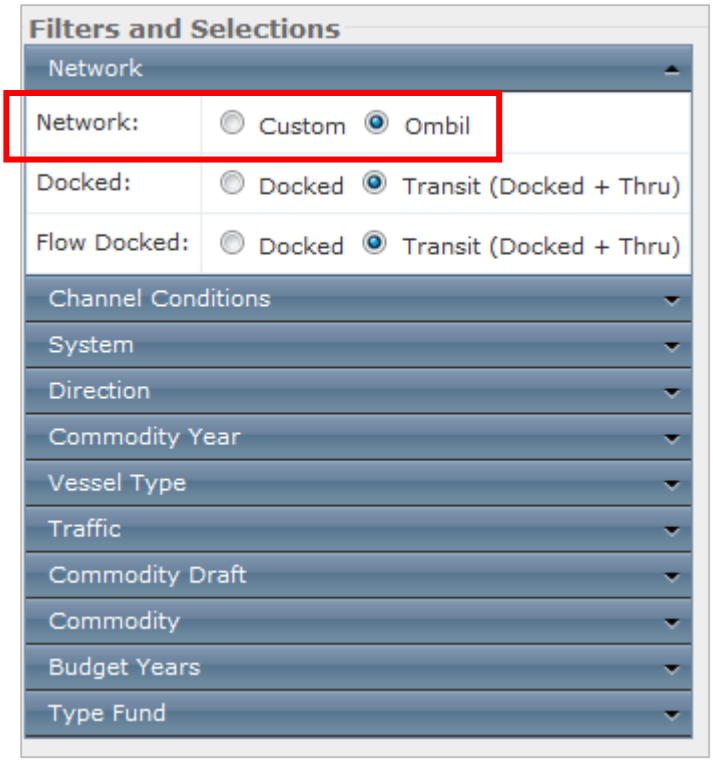
Instead of displaying all the possible row for query results, setting this filter to 5 will result in the query results displaying only 5 ft on either side of target elevation.

Most users should set Filter Details N Draft at 10, to focus on the most relevant parts of the displayed results.

Budget Details

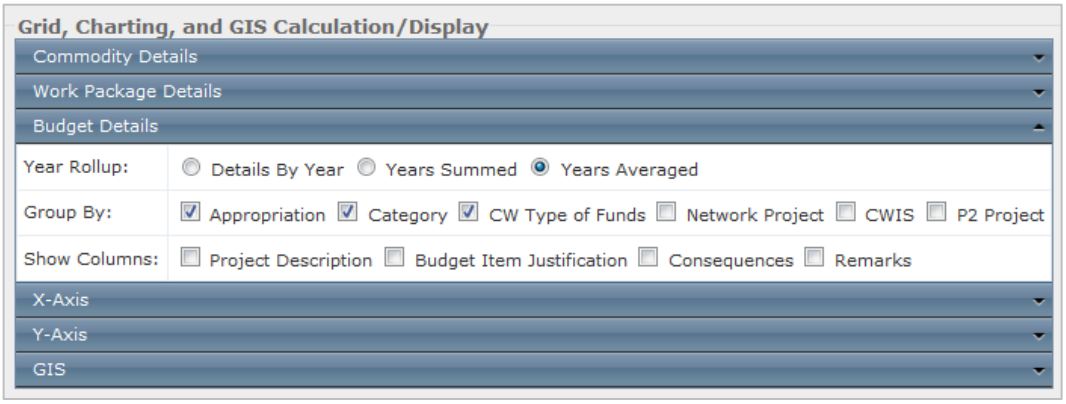
This specialty filter is designed to allow users to see different budget columns as part of query results. Note that budget data (fiscal year) is separate from tonnage data (calendar year). Explanation

To view any of the budget data set **Network** radio button to **Ombil.**

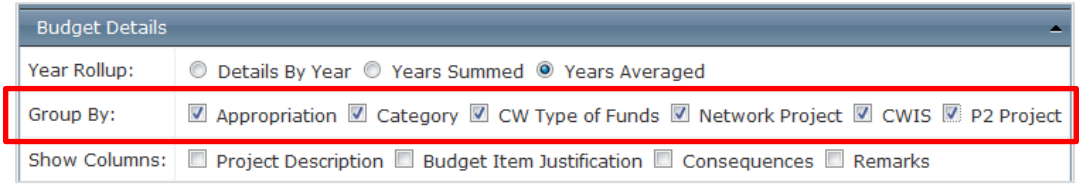


If this first filter is not set to Ombil then any budget columns you view later will be blank or display $0.

View of the Budget Details filter default settings.



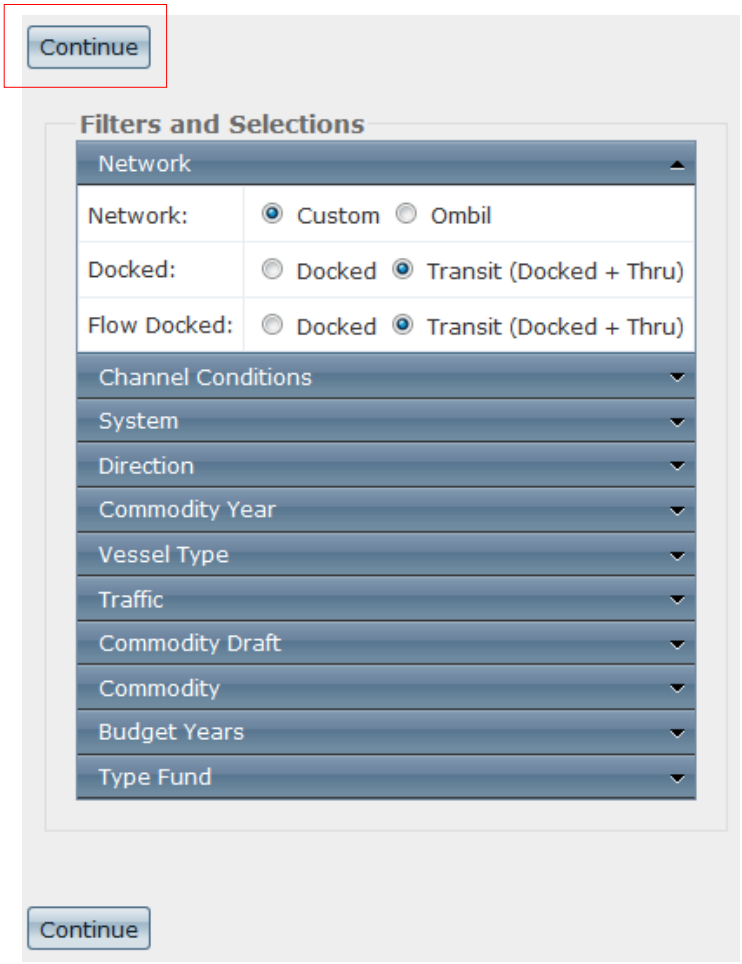
Specialized users should select all boxes in the GROUP BY section to get the highest level of detail.



Another important choice is the YEAR ROLLUP option, users can choose from three options:

- Details By Year
- Years Summed
- Years Averaged

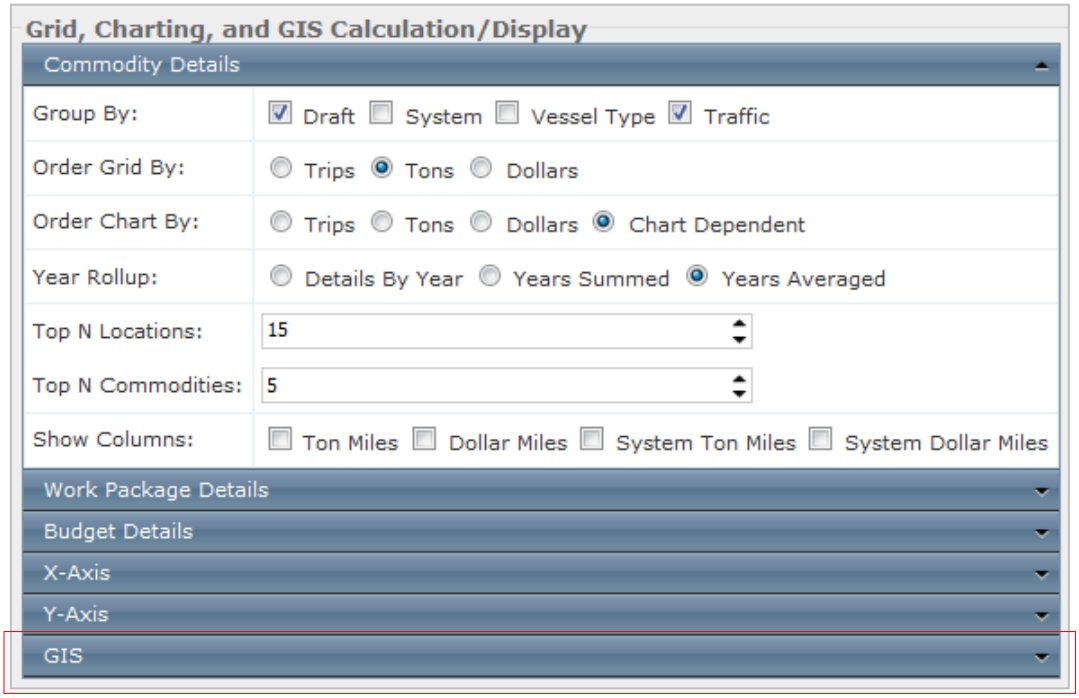
After setting your filters, click on the CONTINUE buttons to move on to selecting LOCATIONS.



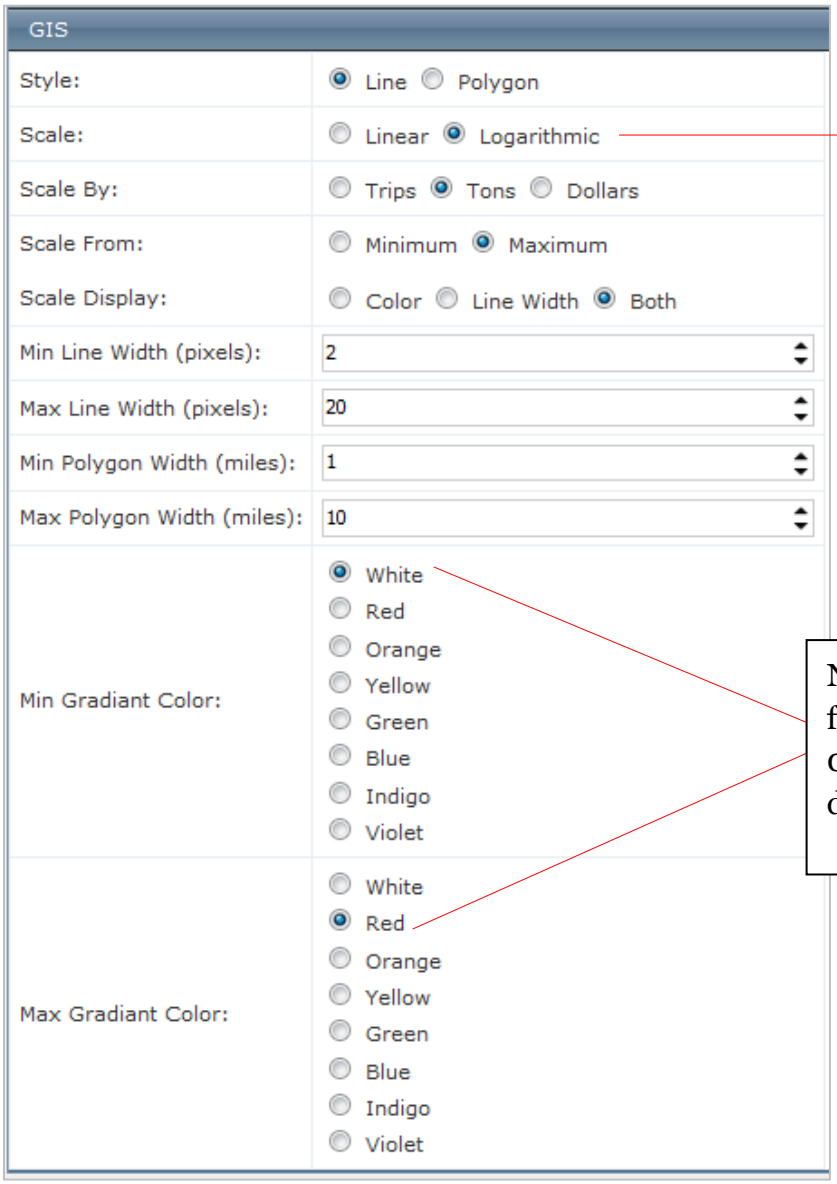
GIS

This specialty filter is for users who intend to export query results into GoogleEarth to make maps.

Click on the GIS row to expand and view the filter options.



The default GIS settings are shown below.



Users can choose between linear or logarithmic scale to compute line color and width.

Note that default choice for low values (including 0.00) is set to white, and default maximum is red.

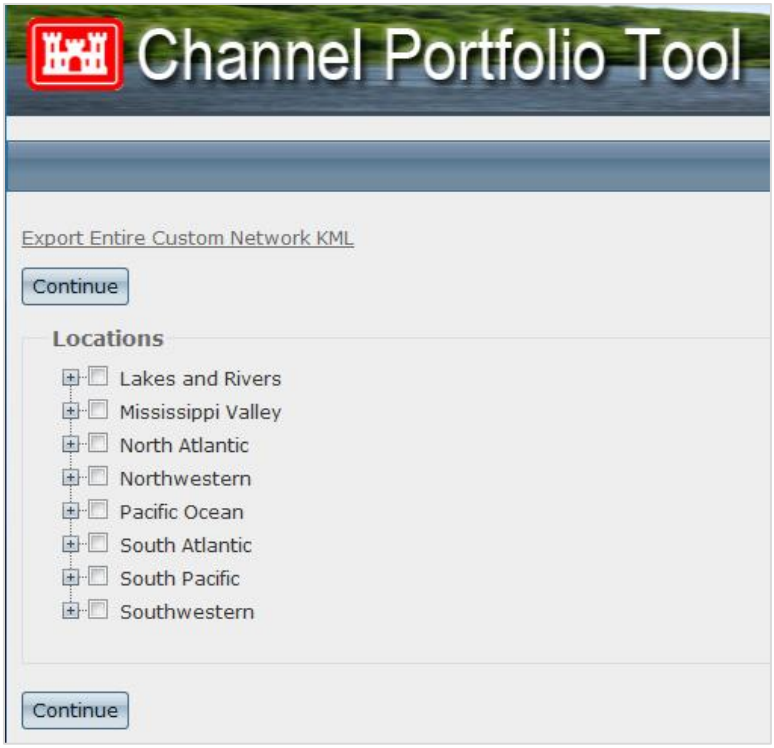
For examples of the effects of changing the default GIS settings see the sections:

- *Examples of Flow Tab exported graphics in GoogleEarth*
- *Examples of Rankings Tab exported graphics in GoogleEarth*

4 Selecting Locations

This section allows users to select channels for their query at the Division, District, Project, or individual reach level.

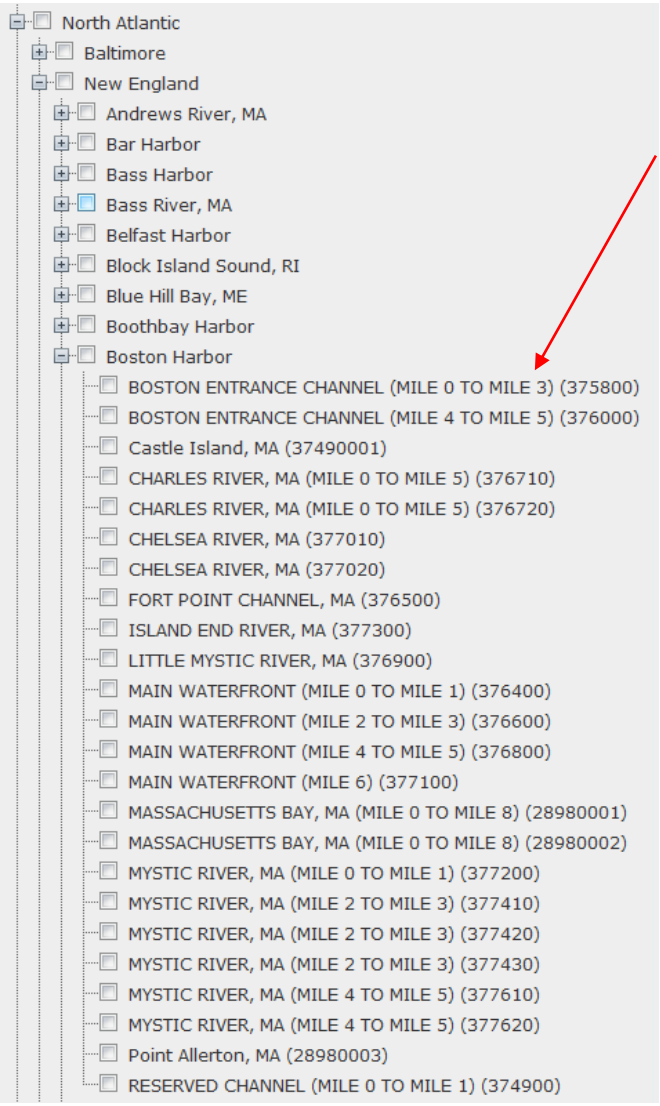
The landing screen for the Locations selection option is shown below.



The location hierarchy has four levels: Division, District, Project, Reach.

Location filters can also be accessed via the Locations tab on the top of your screen.

Tip: Checking a box will select ALL possible sub-lists, e.g., checking the box for New England District will select all the projects listed under New England, and all the reaches within each project.

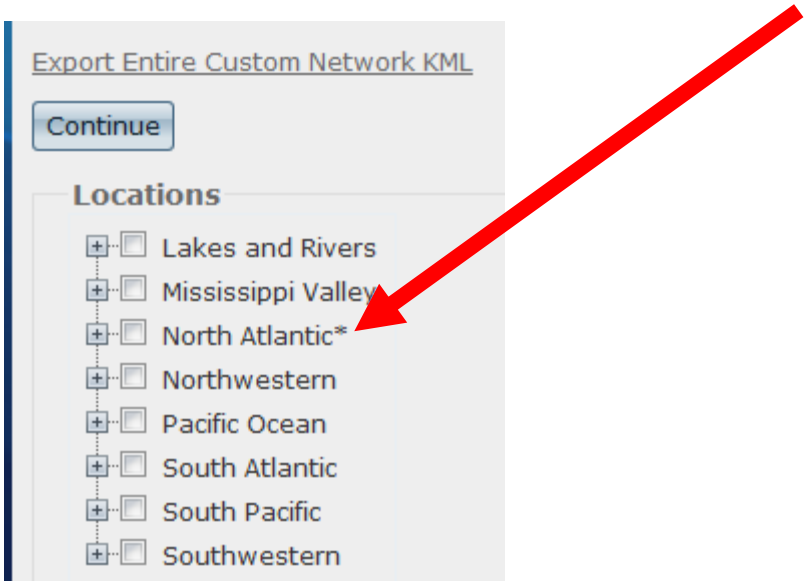


The screenshot shows reach-level detail available in North Atlantic Division, New England District, Boston Harbor project.

Reach designations generally correspond to the names and numbers as listed within the National Channel Framework. There may be exceptions to this naming where one reach has been split into two or more parts to better reflect administrative or operational realities.

When you are finished selecting locations for your query click on the Continue button at the top left corner of the screen.

NOTE: If you have already performed a query the previous locations will still be selected. The presence of selected reaches is denoted with an asterisk after a Division name.



When running a new query you must go in and un-check locations you no longer want in your query.

Note: After setting filters and selecting locations users can save their query information as a .cpt file for future review in conjunction with any exported query results. For instructions on how to save a .cpt file see the section of this user manual titled *Exporting saved queries as .cpt files*.

5 Viewing Query Results

After you have set the filters in PREFERENCES and LOCATIONS CPT will move to the results page, which does not display any numbers at first.

The default view is the highest organizational level selected on the Locations page (i.e. Division, District, Project, or Reach).

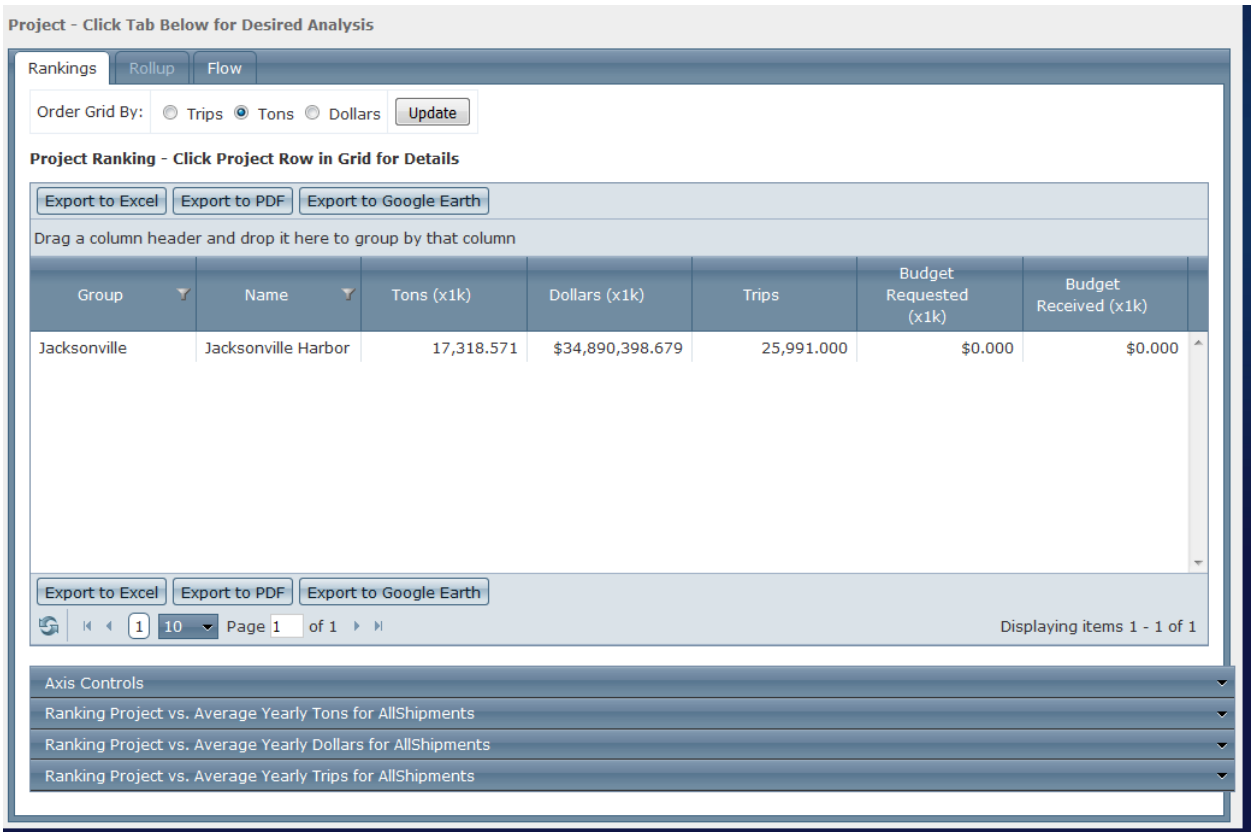
You must select one of the available tabs, in the view below the options are RANKINGS or FLOW.

At this highest default Report-view level there are at least two tab options for viewing query results:

- **Rankings** – This tab displays the most aggregated location record according to selected criteria. It is not appropriate to add up the numbers provided in each Rankings result to arrive at a total number for the system, such a method would result in double-counting. Double-counting can be avoided by using the Rollup tab, usually available one Report-level down (e.g. if your default view is District-level, you will need to be in the Project-level view to see the Rankings tab).

- **Flow** – This tab displays any tonnage with an origin or destination that transited the reaches selected in the Locations page.

The RANKINGS tab will display results for the combined reaches. In this example, combined filter results for all of the Jacksonville Harbor project reaches are shown as a single project-level value.

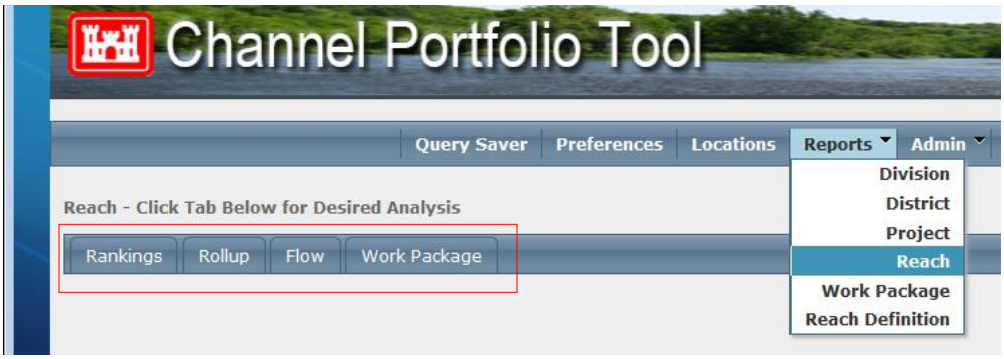


The RANKINGS tab displays one table and a set of graphs, commodity information is not available on the RANKINGS tab table.

To view commodity information users must use the ROLLUP tab.

Reports: Reach Level

To view Reach-level results, users will usually need to select **Reach** from the drop-down menu under the **Reports** tab at the top of the screen. If users have selected *only reaches within a single project* the default view will be at the Reach-level.



At the **Reports: Reach** level there are 4 tabs for viewing query results:

- **Rankings** – This tab displays each location (project or reach) according to selected criteria. It is not appropriate to add up the numbers provided in each Rankings result to arrive at a total number for the system, such a method would result in double-counting. Double-counting can be avoided by using the Rollup tab.

- **Rollup** – The Rollup tab in CPT is equivalent to a 'consolidated report'[1] summary statistic used in the Waterborne Commerce of the U.S. reports for a waterway or group of channels. This method recognizes that a single voyage may transit multiple projects, but the tonnage from that voyage should only be counted once. CPT allows users to customize the selection of reaches included in the Rollup results view.

- **Flow** – This tab displays any tonnage with an origin or destination that transited the reach.

- **Work Package** - This tab displays proxy-benefit/cost information based on dredging costs, forecasted shoaling rates (where available), and tonnage supported by individual reaches.

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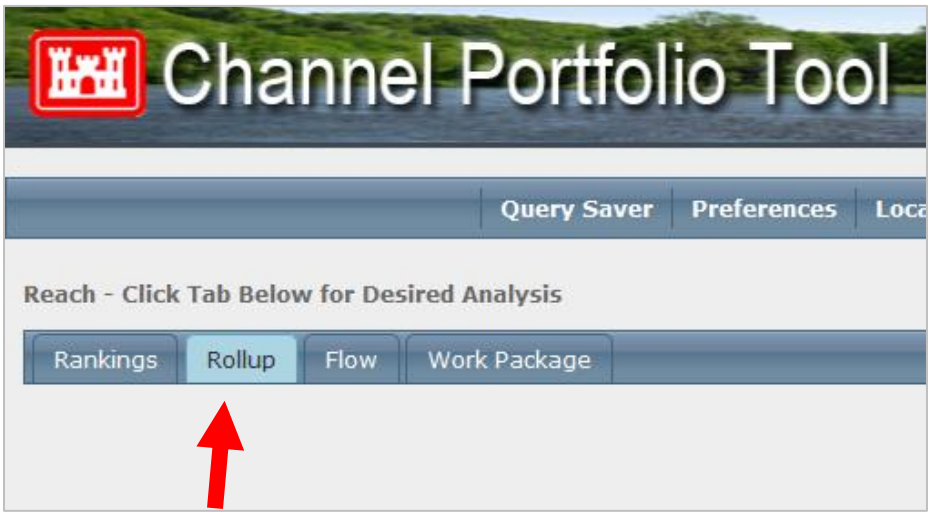
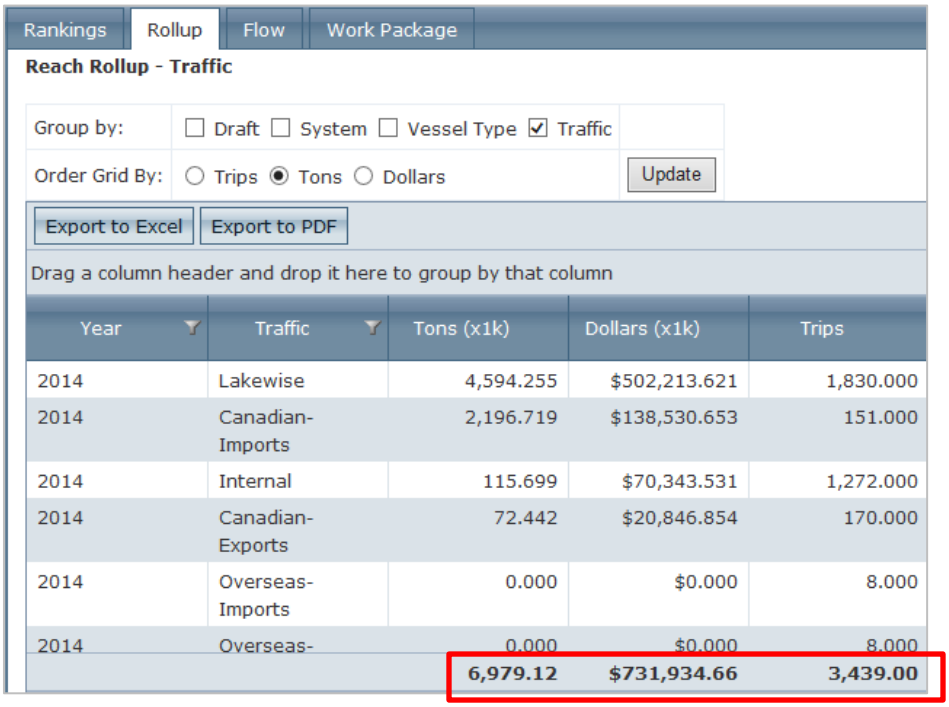
[1] For example: U.S. Army Corps of Engineers, Waterborne Commerce Statistics Center, Navigation Data Center. Waterborne Commerce of the United States 2013. *Part 1: Sheet 9: Atlantic Intracoastal Water (Consolidated Report) between Norfolk, VA and the St. Johns River, FL*. (PDF File.) http://www.navigationdatacenter.us/wcsc/wcsc.htm

http://www.navigationdatacenter.us/wcsc/webpub13/Part1_WWYs_tonsbyTT_Dr_Yr_commCY2013-2009.htm

The ROLLUP tab is the most useful option for examining large systems because it avoids double-counting trips, tonnage, or values that may results from traffic moving through multiple reaches on a single voyage.

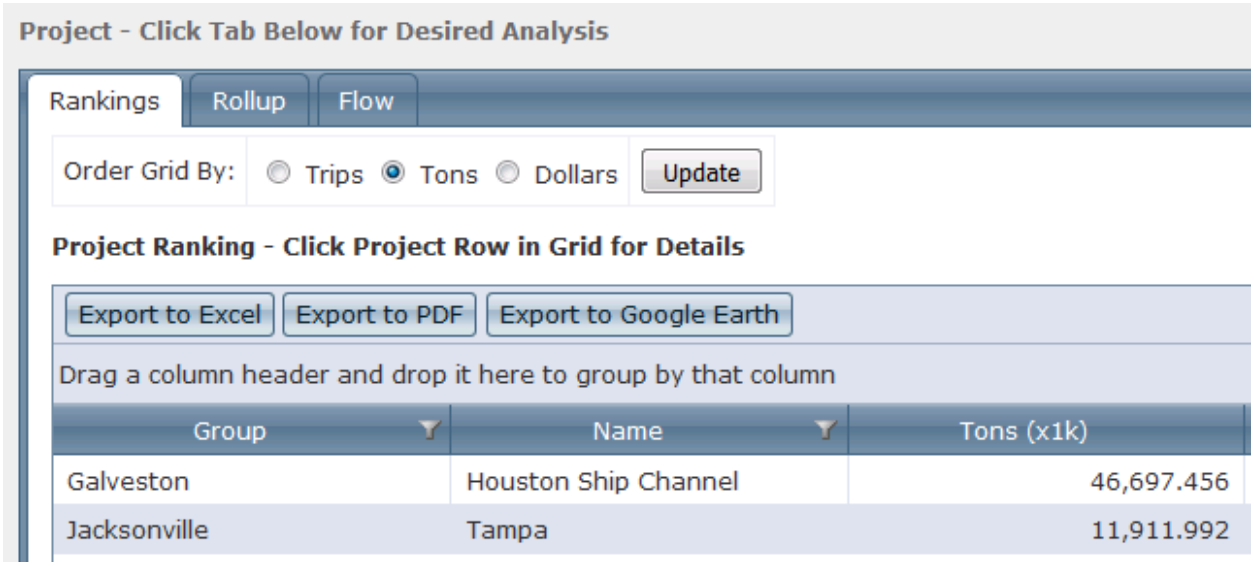




Tables displayed on the **Rollup** tab screen will have **Totals** shown below the table in bolded numbers. These numbers will not change as the user scrolls through the table results.

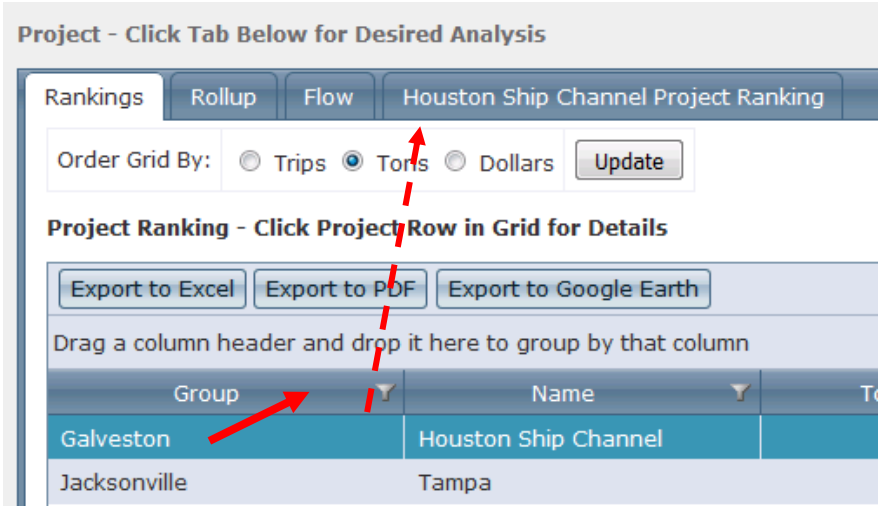
Rankings Tab

If the user selects multiple locations there will be a Rankings Tab in the results with multiple rows in the table. By default these rankings will display the highest value on top.

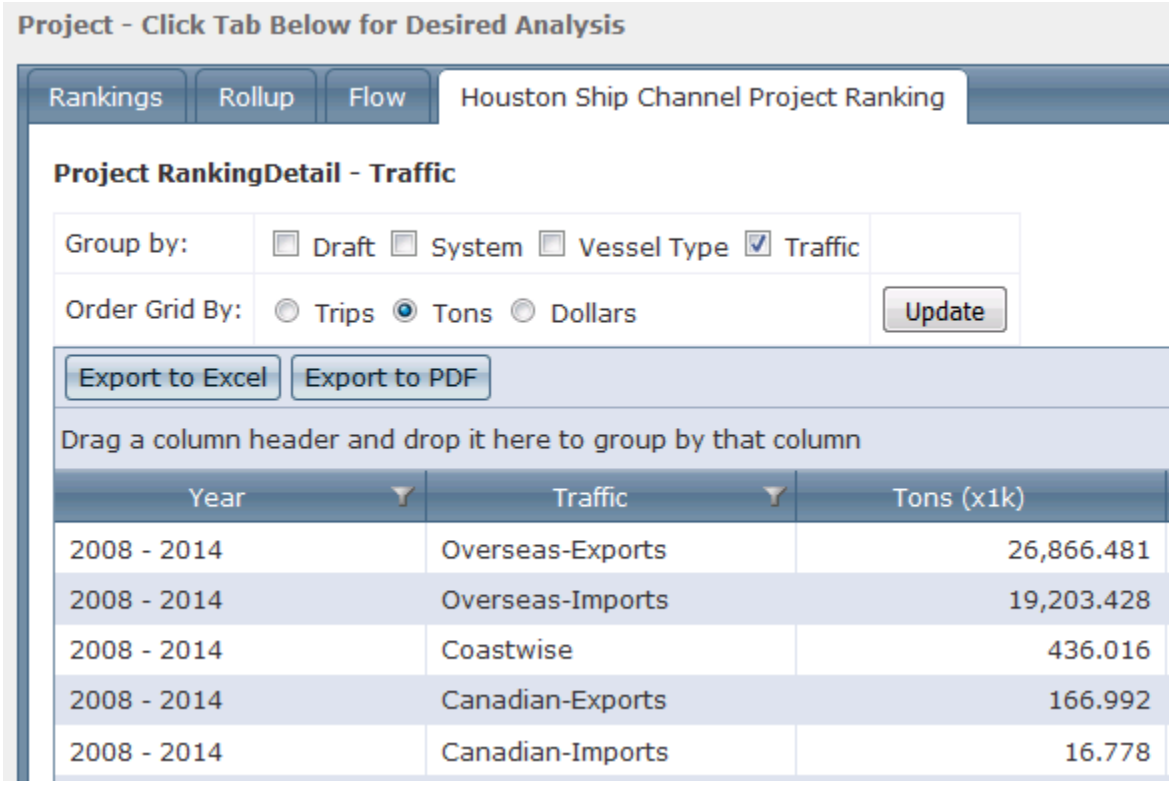


To view more detailed information about a row in the table, simply click on the row and a new tab will appear in the back.

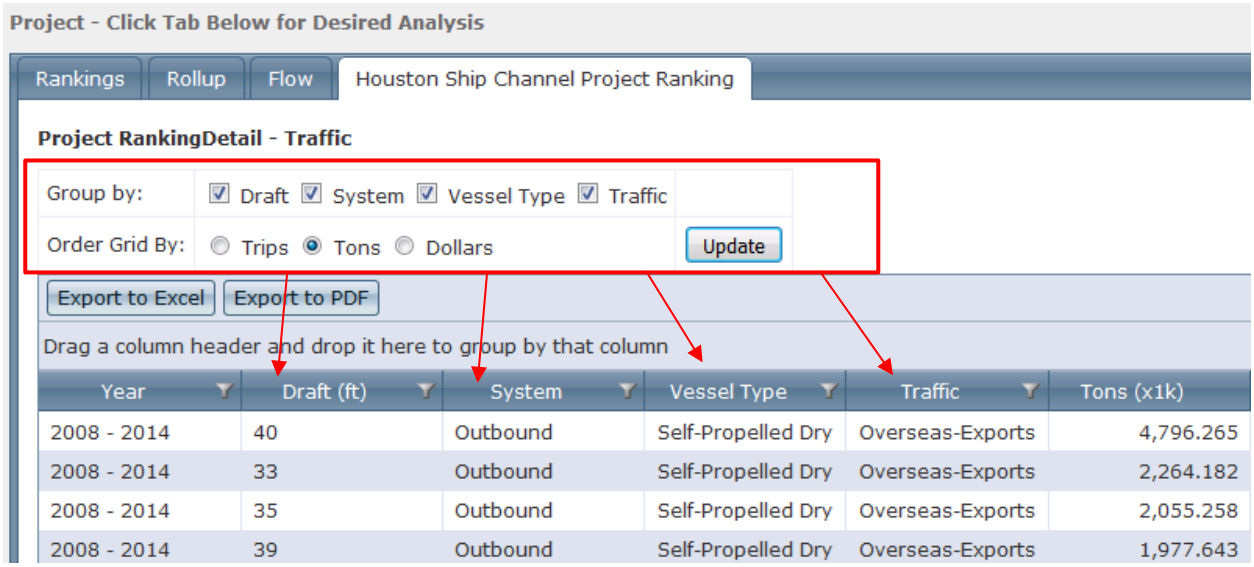
Click on a row



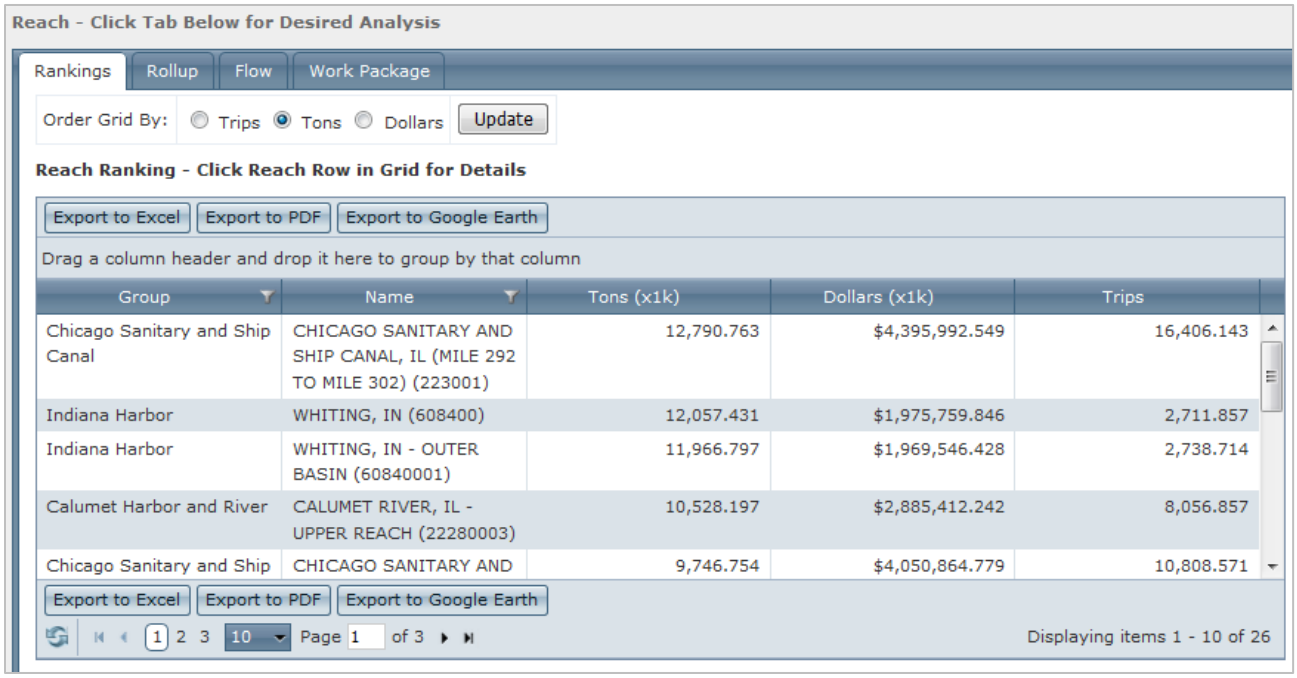
View of the Project Ranking Detail tab.



Selecting the check boxes next to the Group by options, then clicking the Update button, will add new columns to the display. These tables can be exported to Excel or PDF.



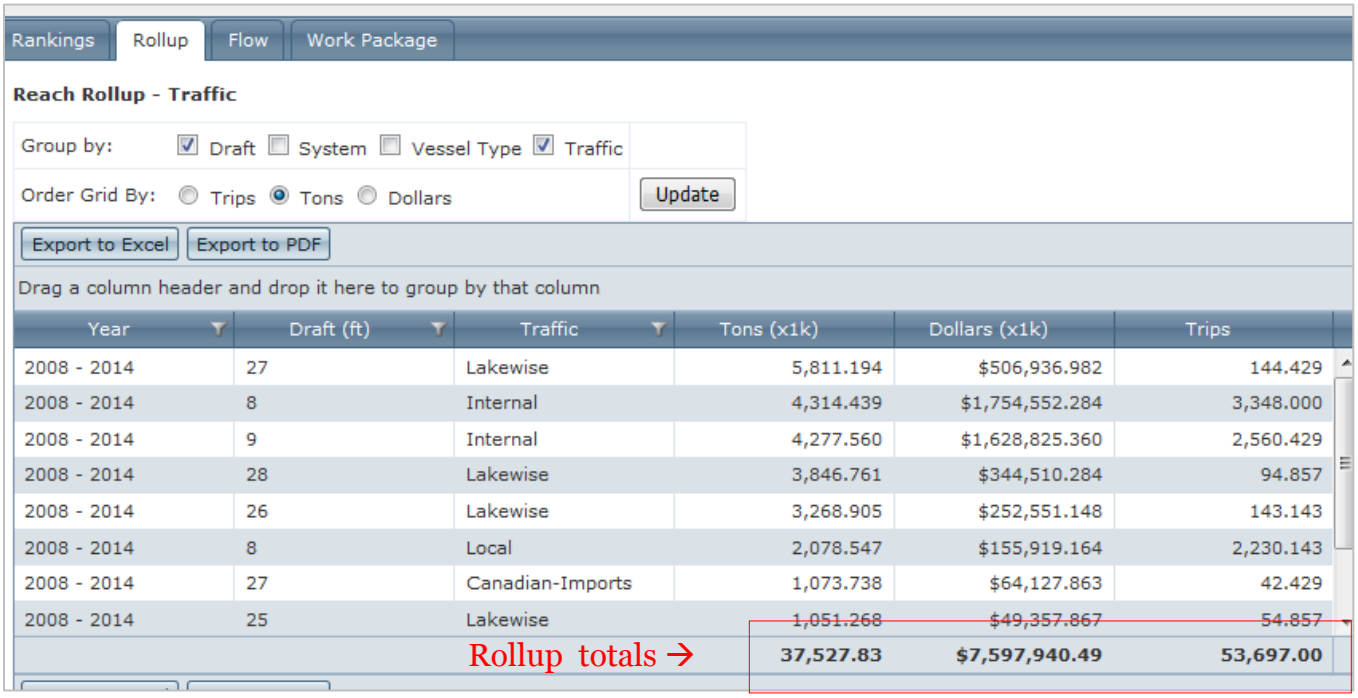
Note that while the **Rankings** table will display results for individual reaches, there is no overall total displayed. This is because voyages may transit multiple reaches in a single voyage, so simply adding up the number from each reach would significantly over-count the tonnage, dollars, or trips (to the point of double-counting, triple counting, etc).

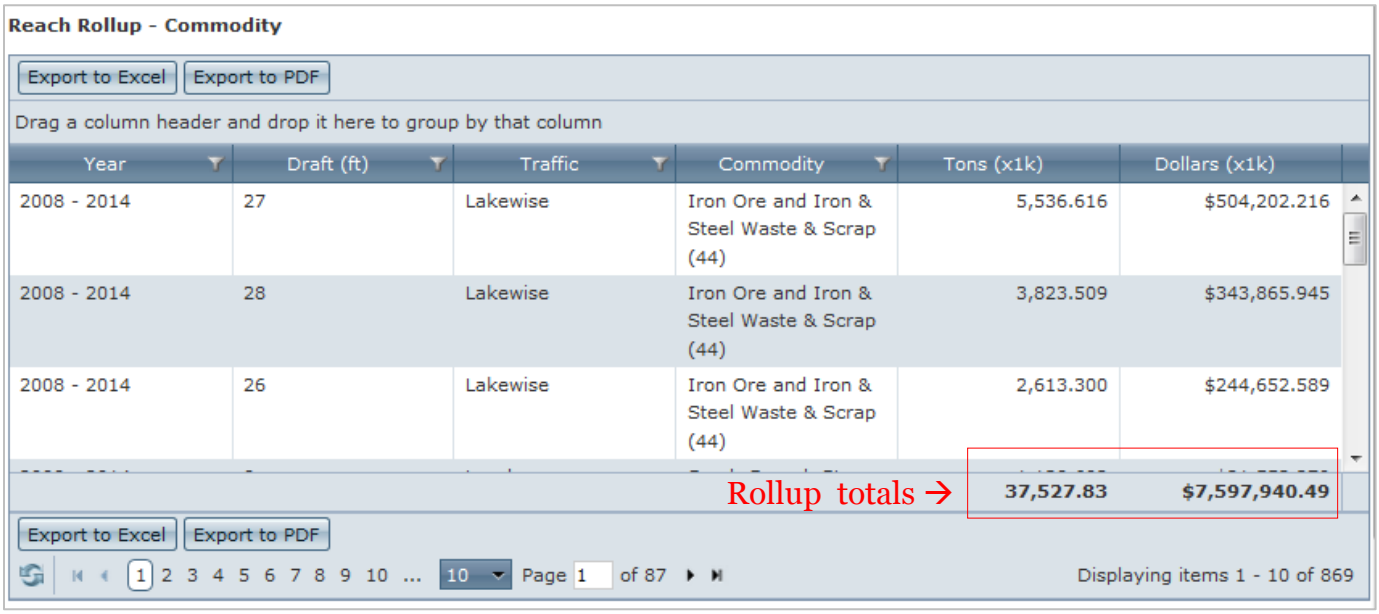


In order to view totals (tonnage, dollars, trips) for a group of selected locations you must use the **Rollup** tab.

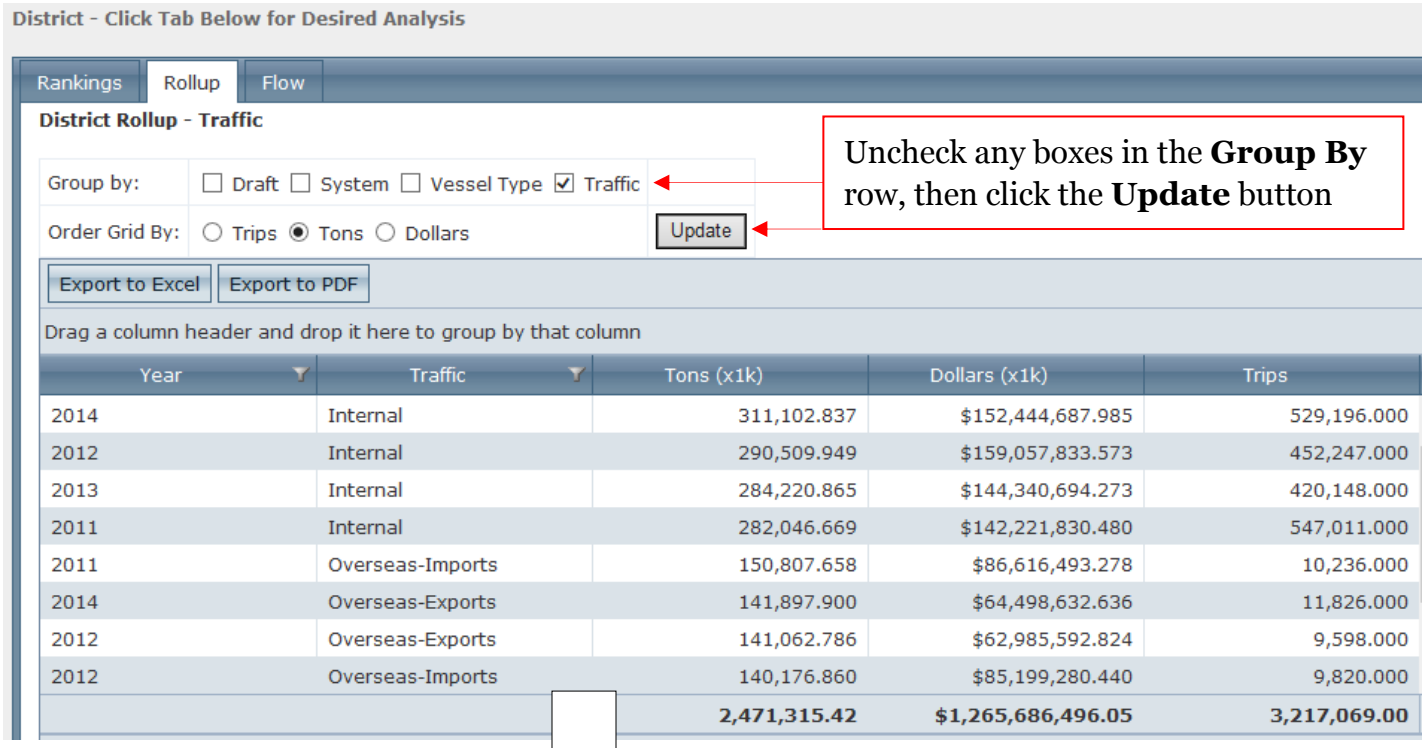
Rollup Tab

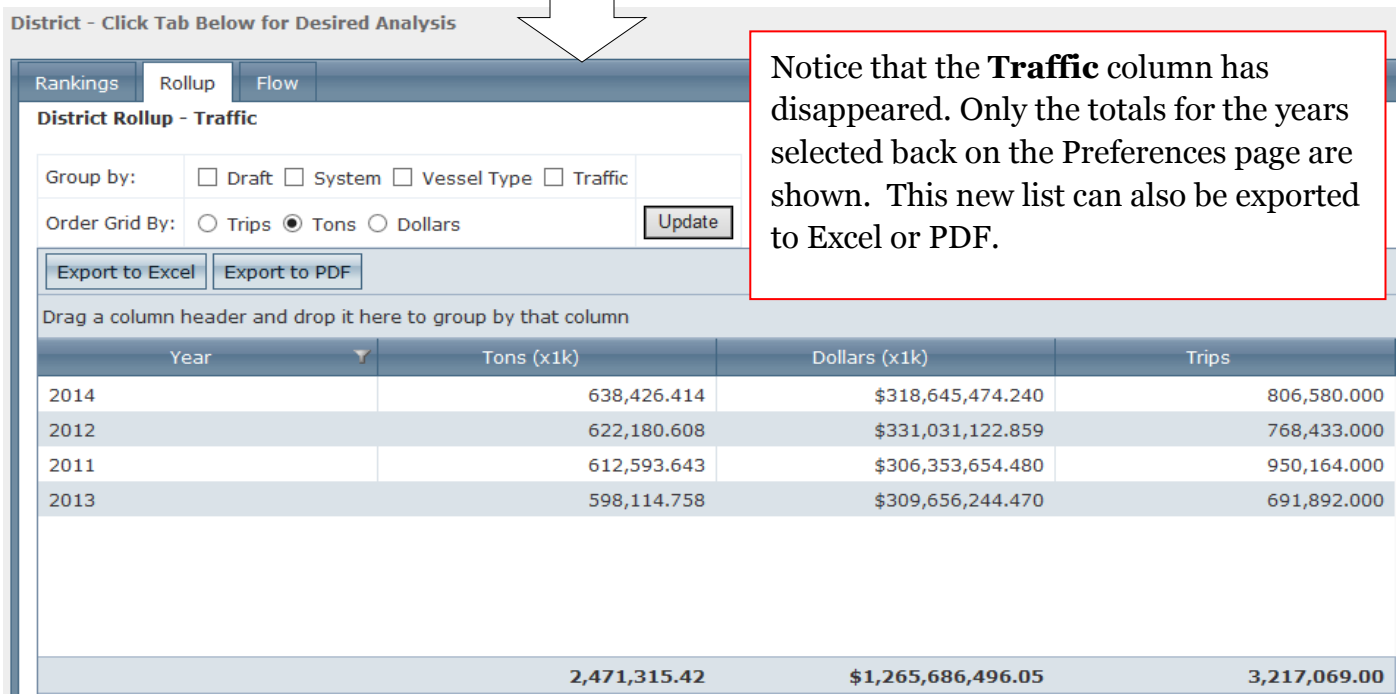
The Rollup tab displays reach-level results, but includes an extra row at the bottom the table showing totals (the rollup) for the selected group of reaches in a way that avoids double-counting.





In the **Rollup** tab, to quickly display *only* the total values for tonnage, dollars, and trips for the selected reaches in your query simply uncheck any boxes in the "Group By" section at the top of the screen, then click the Update button. If you have included multiple years in your query each year will be shown separately.



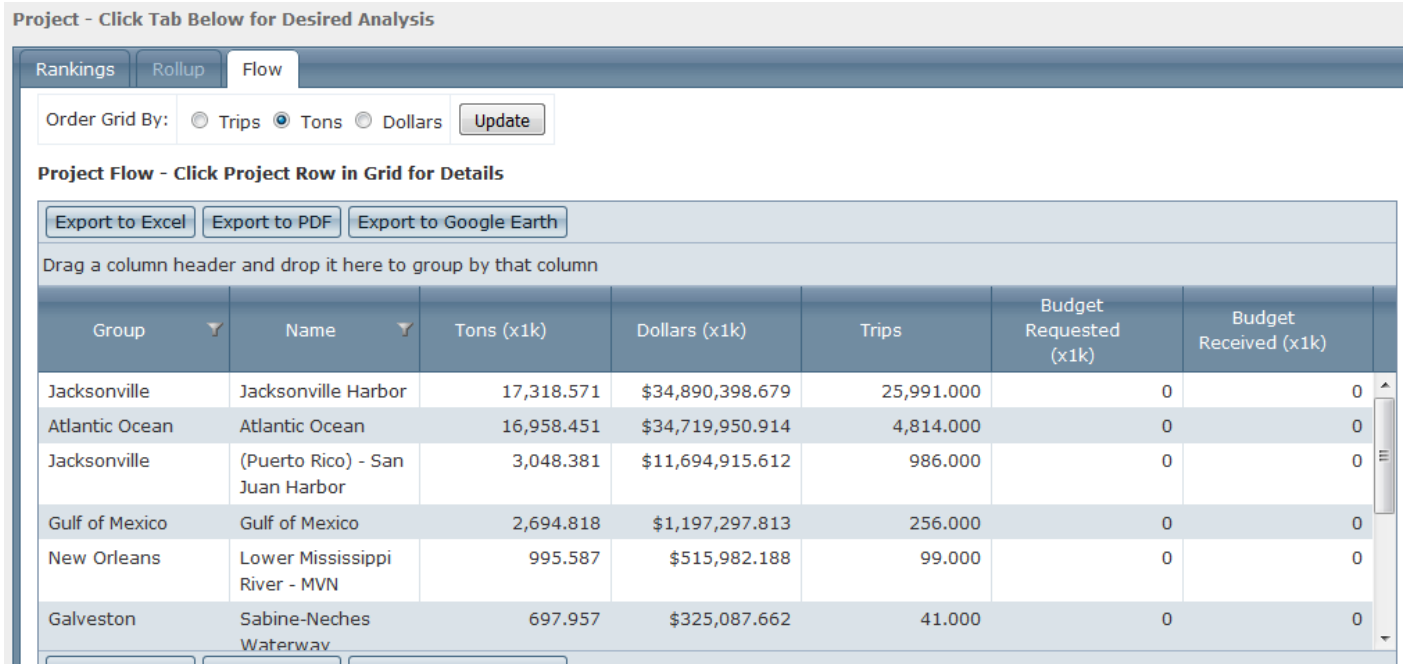


Flow Tab

The Flow tab provides a view of query results that displays the connectivity of shipments from the *user-selected locations* to other origin/destination locations.

Note for Column titles:

- **Group** = This column displays the next level up in the naming hierarchy from whatever is in the **Name** column.
- **Name** = This column displays either origin or destination of a place that handled the tonnage that passed through the user-selected reach locations.
    - Note: there is no information to identify if a location was origin or destination.

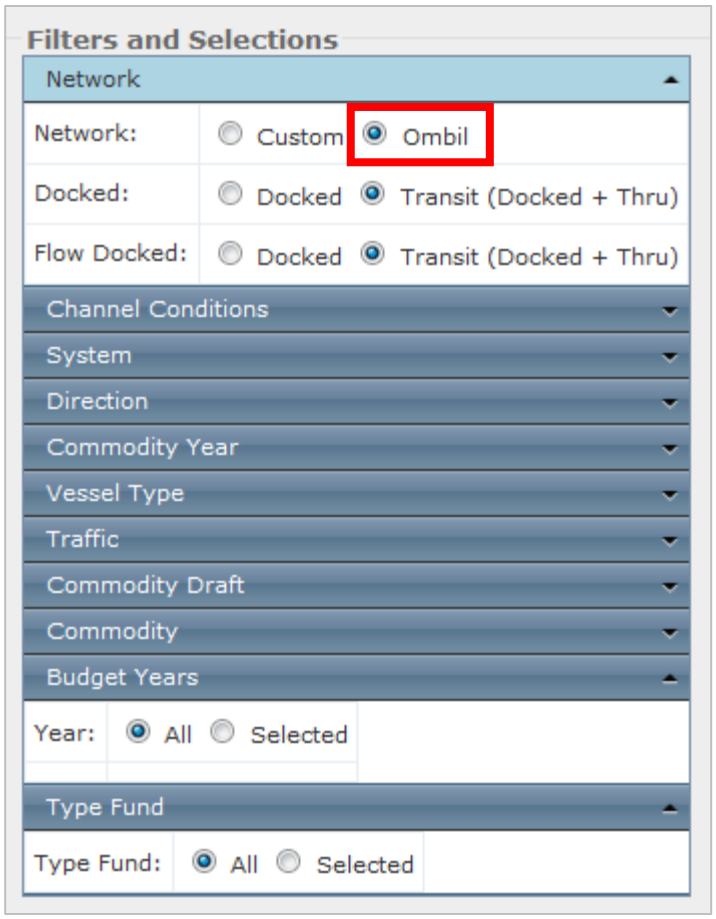


Group	Name	Tons (x1k)	Dollars (x1k)	Trips	Budget Requested (x1k)	Budget Received (x1k)
Jacksonville	Jacksonville Harbor	17,318.571	$34,890,398.679	25,991.000	0	0
Atlantic Ocean	Atlantic Ocean	16,958.451	$34,719,950.914	4,814.000	0	0
Jacksonville	(Puerto Rico) - San Juan Harbor	3,048.381	$11,694,915.612	986.000	0	0
Gulf of Mexico	Gulf of Mexico	2,694.818	$1,197,297.813	256.000	0	0
New Orleans	Lower Mississippi River - MVN	995.587	$515,982.188	99.000	0	0
Galveston	Sabine-Neches Waterway	697.957	$325,087.662	41.000	0	0

Budget Details Query Results

Budget data is totally separate from commercial shipping data, the only connection between the two is the CWIS code. CWIS codes link the budget data to a specific spatial location.

A sample budget detail query is shown below.

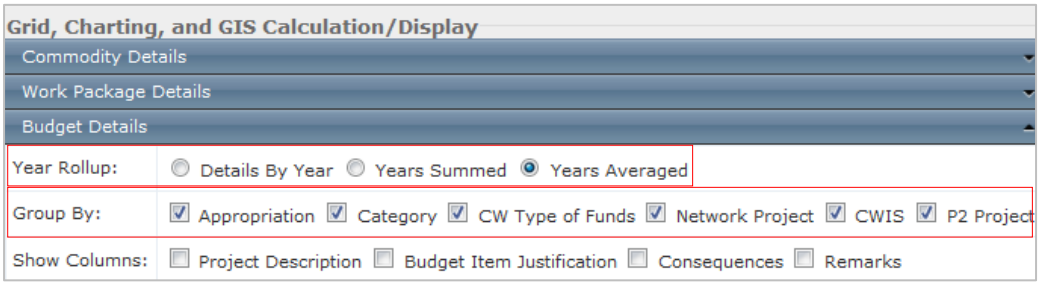


Users must select Network: Ombil, if this filter is not set properly then all budget-related column results will appear as $0.00

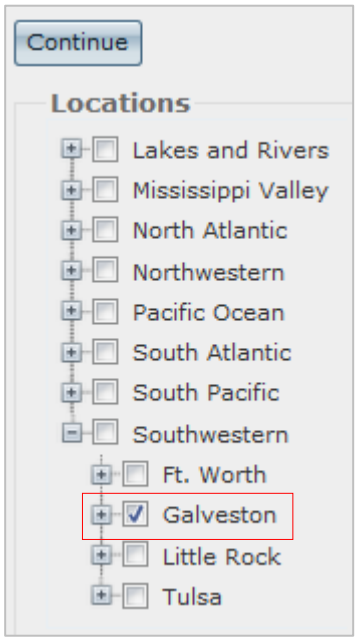
Set Budget Years: All

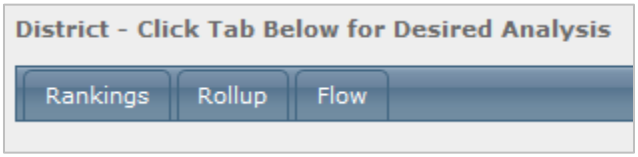
Set Type Fund: All

Under the **Budget Details** filter set **Year Rollup: Years Averaged** and select all the boxes in the **Group By** filter.

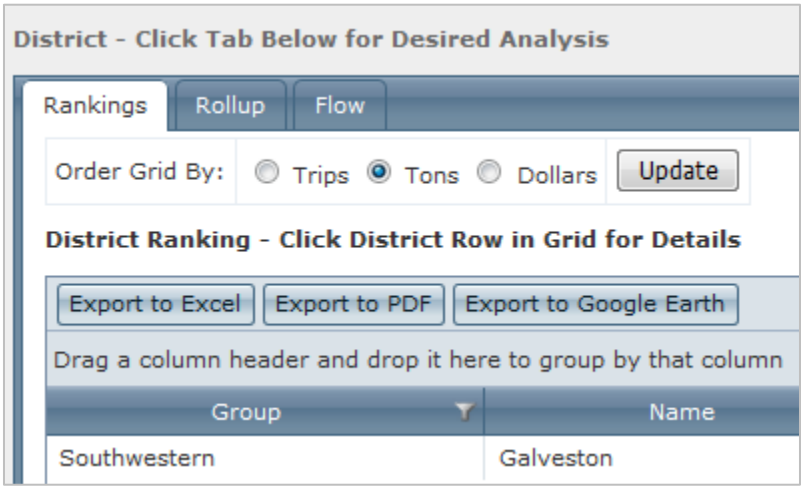


On the **Locations** screen expand the Southwestern Division, select the Galveston District, then click Continue.





The first results screen will be for the District level results.



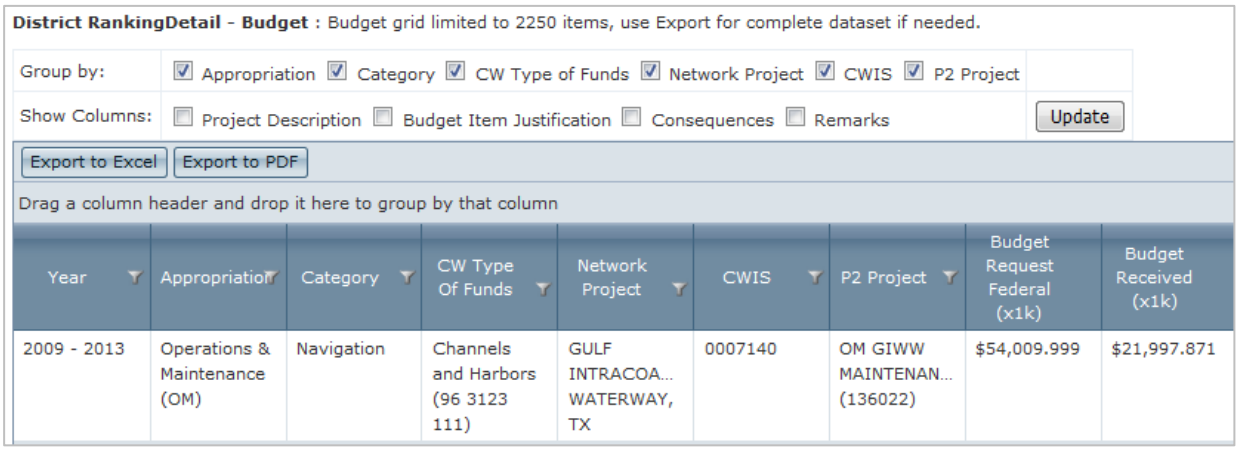
Open the **Rankings** tab, and then click on the row for Southwestern. A new tab called 'Galveston District Ranking' will appear.

Click on the Galveston District Ranking tab.

This tab will display three separate tables:

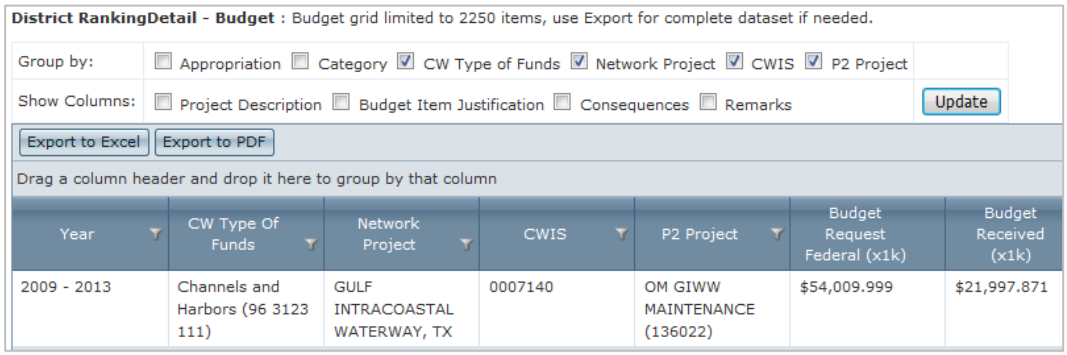
- **District Ranking Detail – Traffic**
- **District Ranking Detail – Commodity**
- **District Ranking Detail - Budget**

Scroll down to see results for the District Ranking Detail – Budget table.



As with other tables, users can select different boxes in the Group by row and then click the Update button, CPT will refresh with a new table.

For example, un-checking the boxes for 'Appropriation' and 'Category', then clicking Update, will result in a new table with those columns removed.

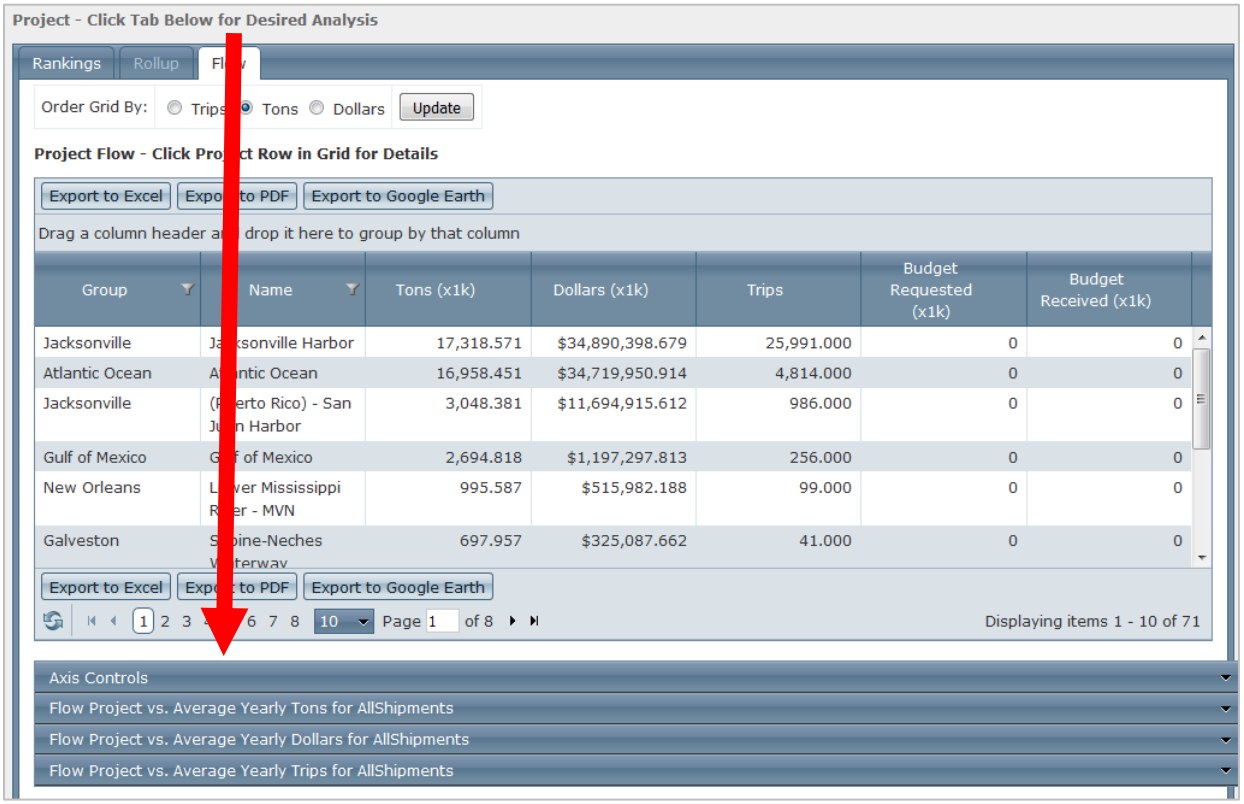


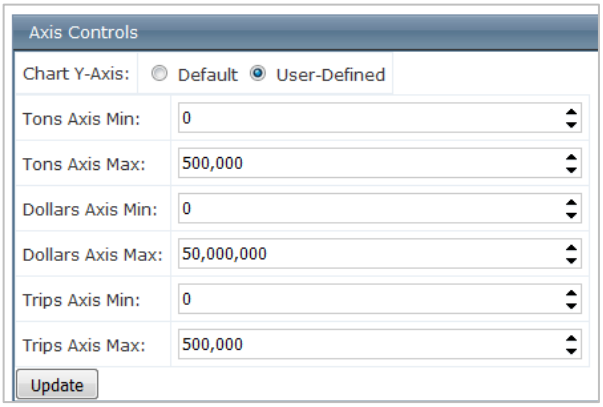
Users can export budget tables to Excel for further analysis.

6 How to use the graphs created in CPT

Under every tab there are multiple graphs available for viewing, these are located below the query tables. These graphs are automatically drawn based on the query results, click on the row to display a graph.

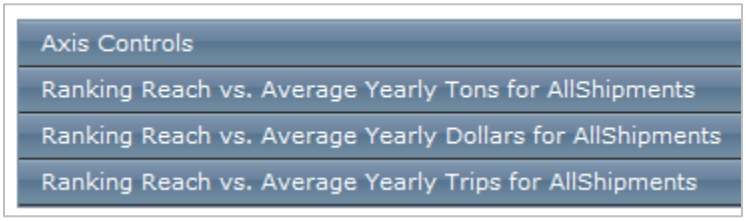
Note: Graphs take a few second to load since they are drawn on the fly.



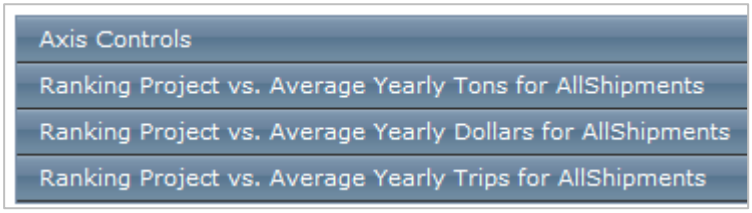


Users have limited ability to adjust graph axes by going to AXIS CONTROLS and selecting the 'USER-DEFINED' radio button to open the controls. Make edits and click on the UPDATE button to re-draw graphs with new settings.

Typical graph options under the **Rankings** tab.

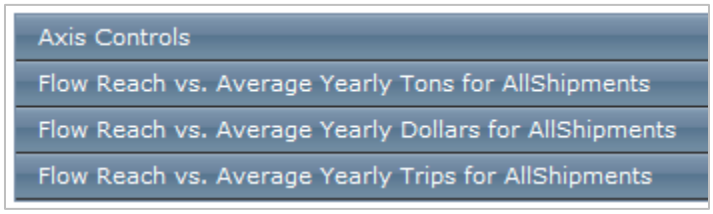


Note that the same graphs are available at the **Reach**-level and the **Project**-level view.



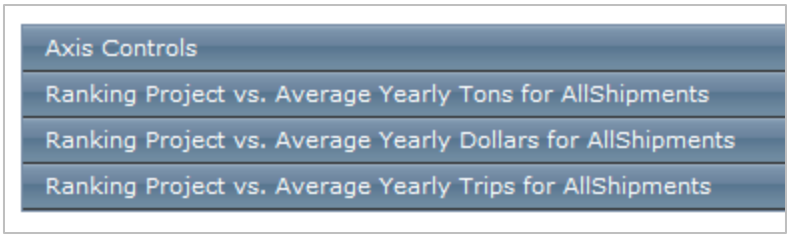
Typical graph options under the **Rollup** tab.

Typical graph options under the **Flow** tab.



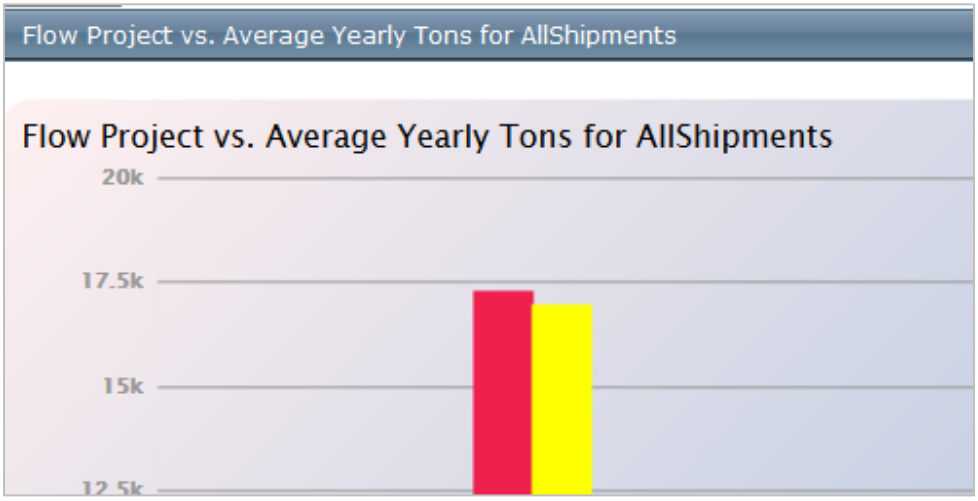
Example graphs from the PROJECT-level view.

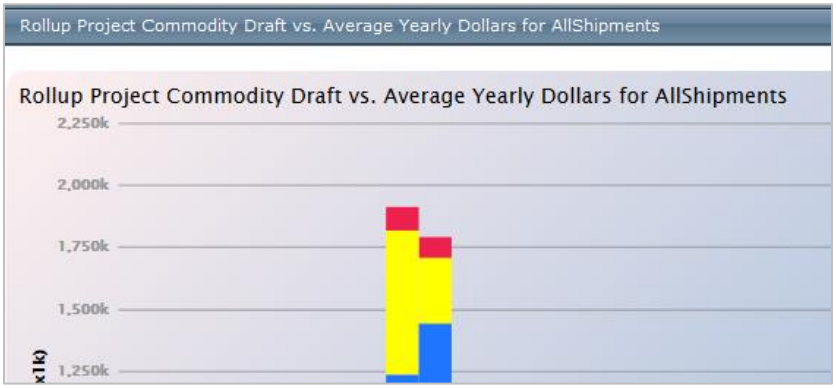
The Project-level view has different sets of graphs available under the Rankings, Rollup, and Flow tabs. Scroll down to the bottom of your browser window to see the available options.



Click on a row to expand it and view the associated graph.

Note that '[Tab] Project' is included in graph title as a record, no matter what tab you are viewing. This example is from a **Flow** tab result.

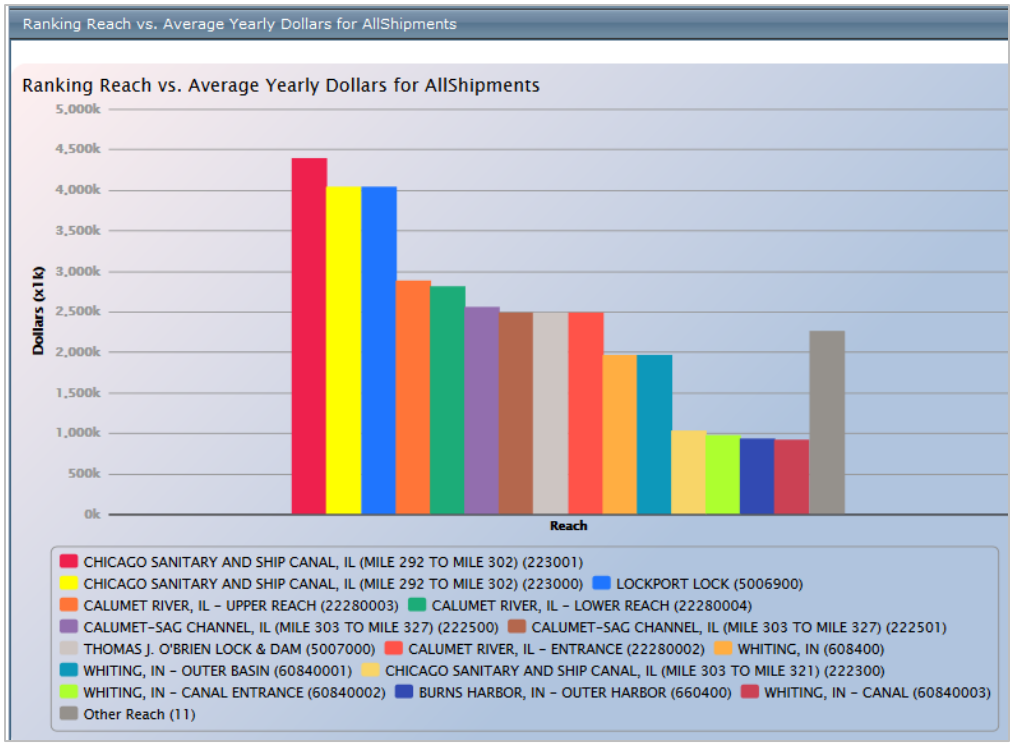




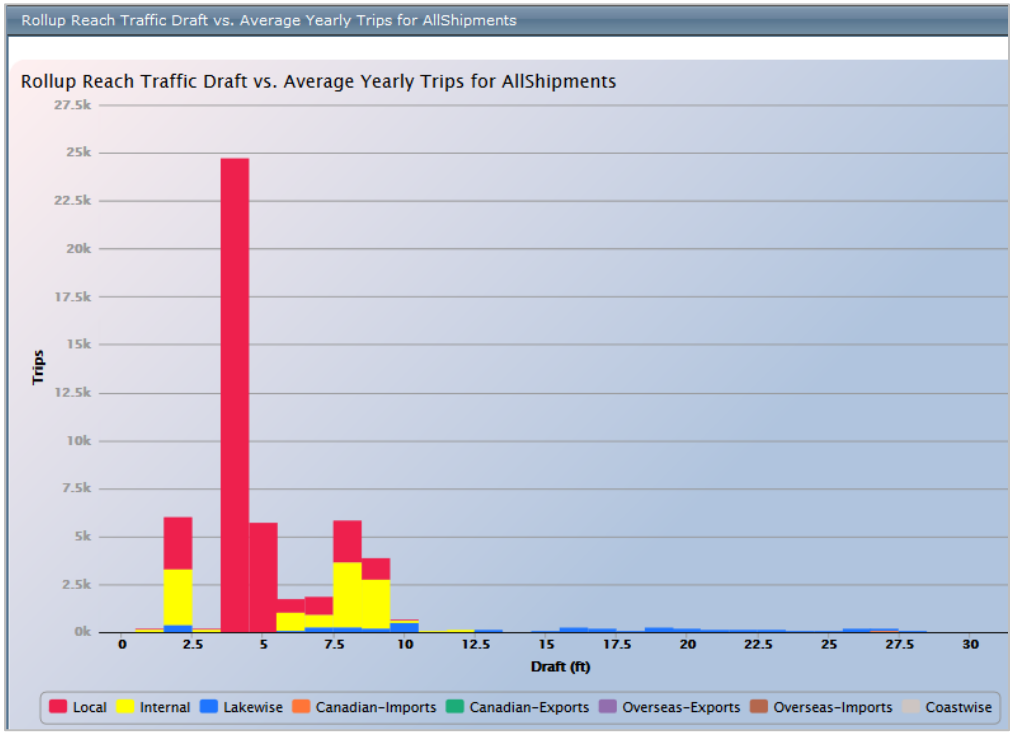
This graph is from a **Rollup** tab within the **Project** view.

Example graphs from REACH-level view

The Reach-level view has different sets of graphs available under the Rankings, Rollup, and Flow tabs. Two examples are shown below.



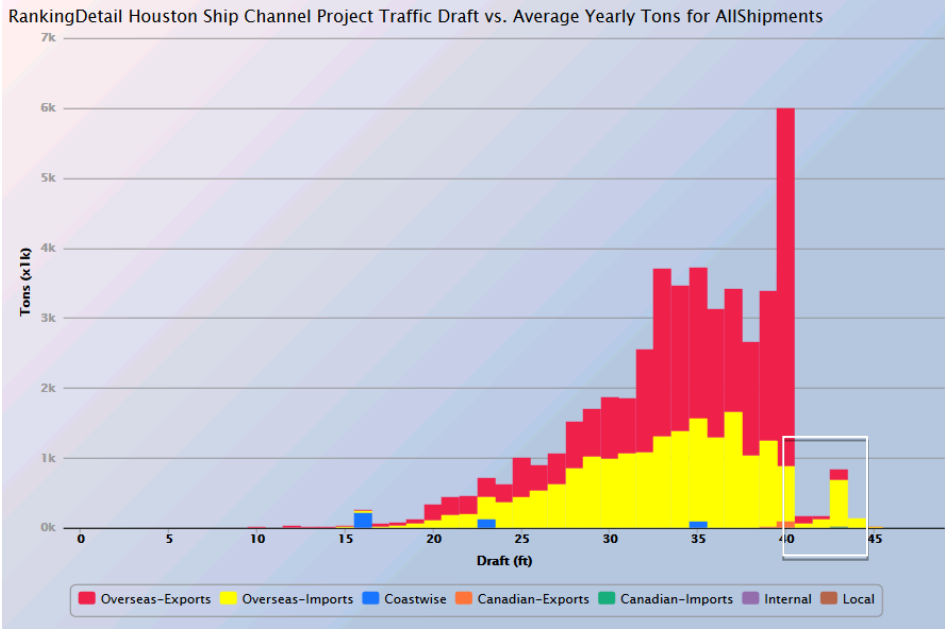
This example graph, the from **Reach**-level **Rankings** tab, displays the results for a grouping of reaches ranked by the value of tonnage that transited each reach, averaged for selected years.



This example graph, from **Reach**-level **Rollup** tab, shows the average number of yearly trips sorted by vessel draft for a selected group of reaches.

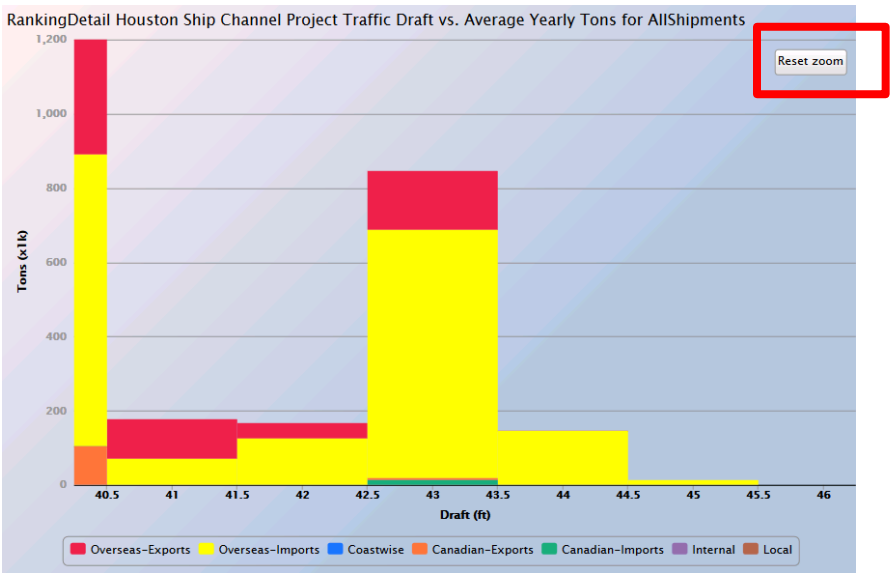
Graphs - Zooming

Users can click and drag to draw a box around an area on a graph to temporarily zoom in.



click and drag to draw a box to zoom

View of temporary zoom.

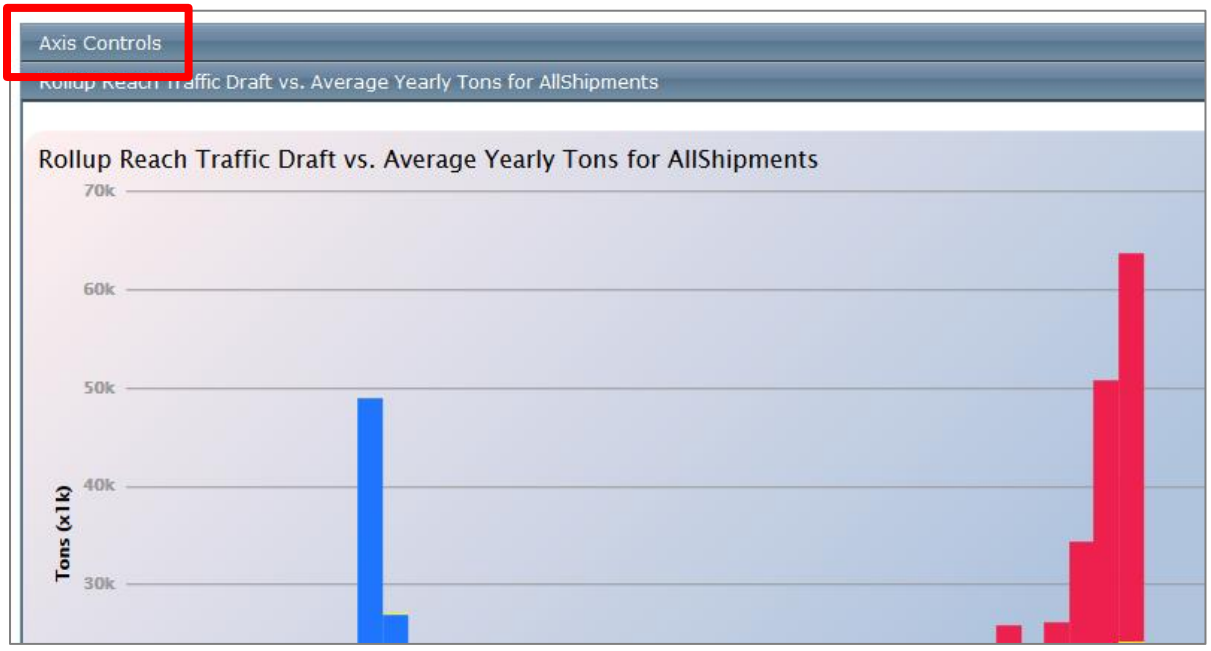


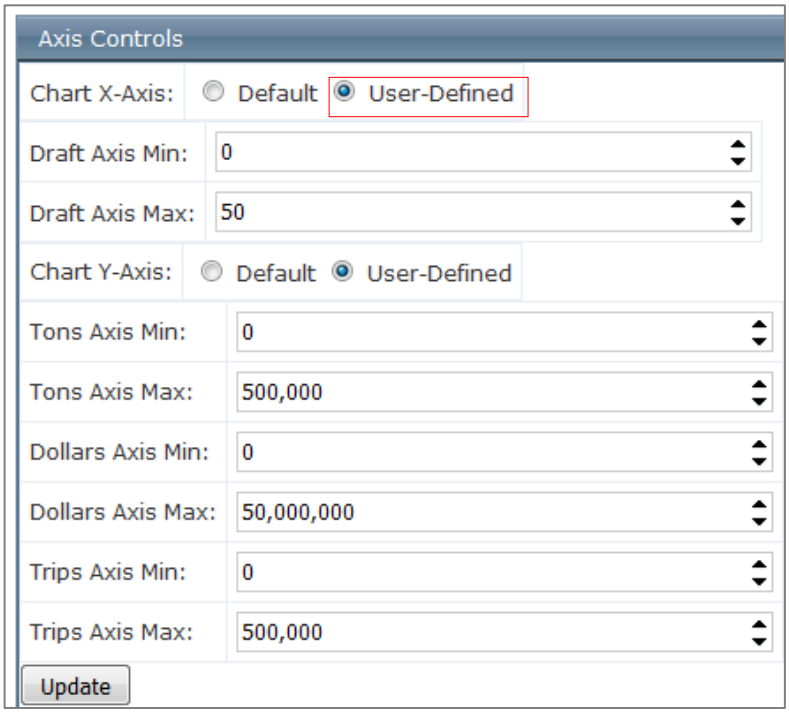
Click on the **Reset zoom** button to return to the original view.

Graphs - Changing Display Axes

Users can change graph displays in two ways:

- Un-checking items already in the legend (described in previous section, may cause the scale to automatically re-adjust)
- Adjusting the AXIS CONTROLS settings above the graphs

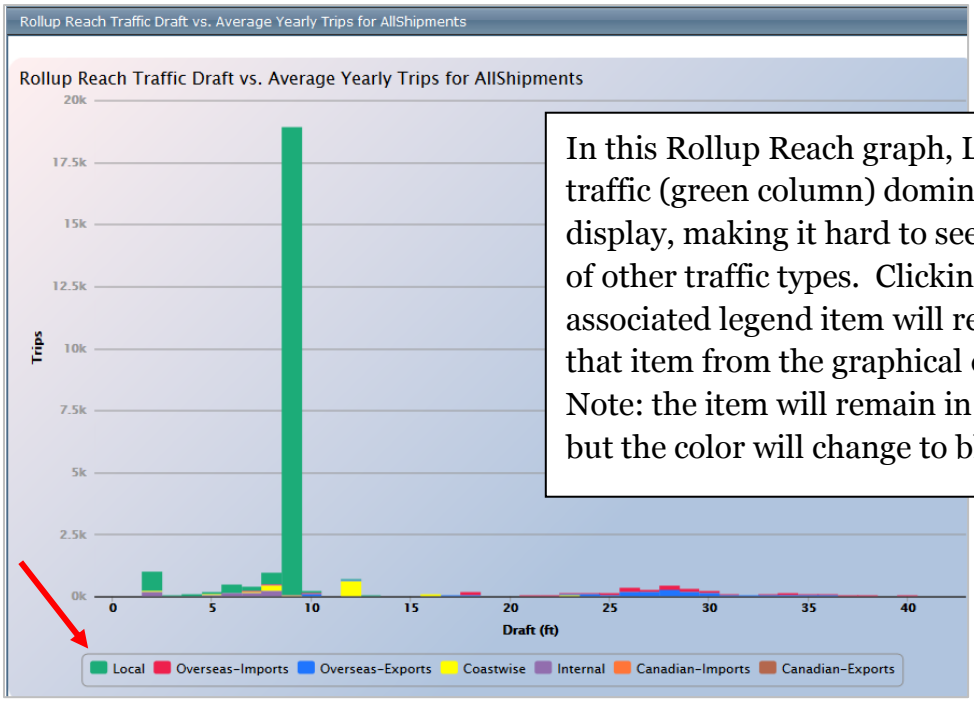




Selecting the radio buttons to 'User-Defined' opens the menu for adjusting both X- and Y-axis.

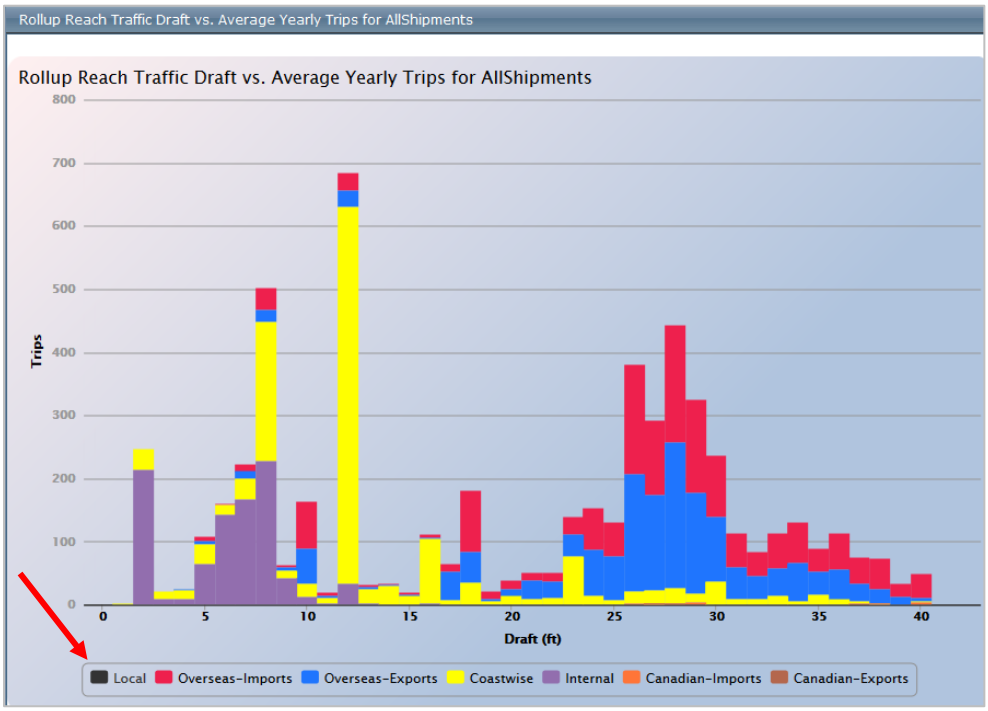
Graphs - Turning columns off or on

Graphs can be adjusted by the user to assist in visualizing the data.



In this Rollup Reach graph, Local traffic (green column) dominates the display, making it hard to see the scale of other traffic types. Clicking on the associated legend item will remove that item from the graphical display. Note: the item will remain in legend, but the color will change to black.

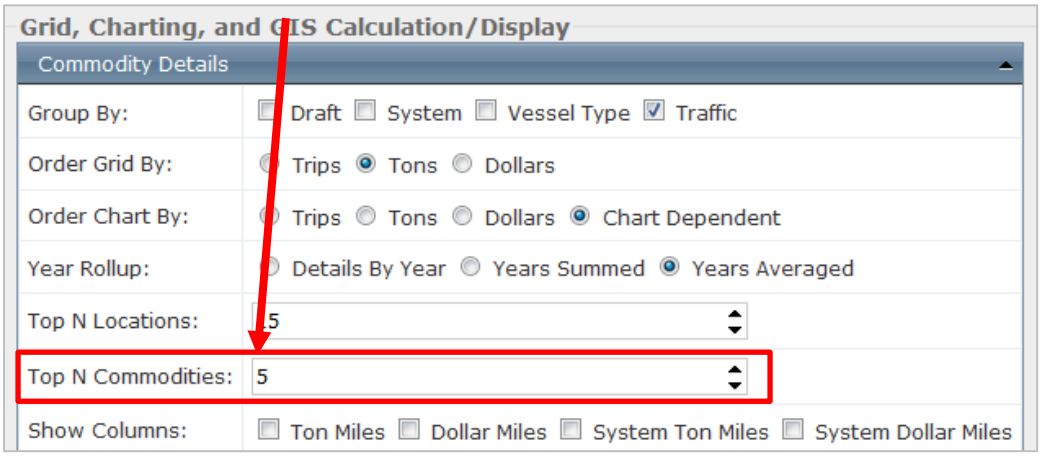
In this case, because the Local traffic (in green) dominated the Y-axis, turning off that column will result in a re-drawn graph, shown below.



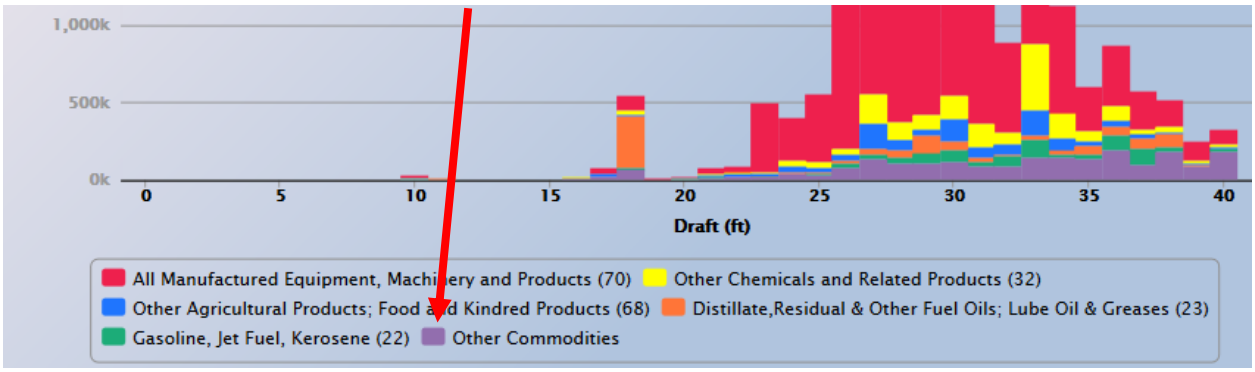
Graphs - Changing the number of individual commodities displayed

CPT commodity graphs will, by default, display the top 5 commodities and group any remaining commodities together as 'Other Commodities.' Users can adjust this number to show up to 9 top commodities.

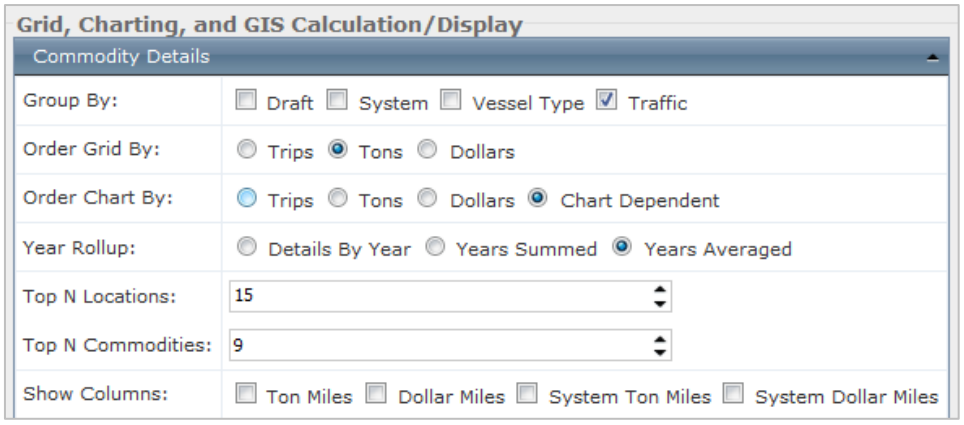
The default choice for the **Top N Commodities** Filter is 5 Commodities.



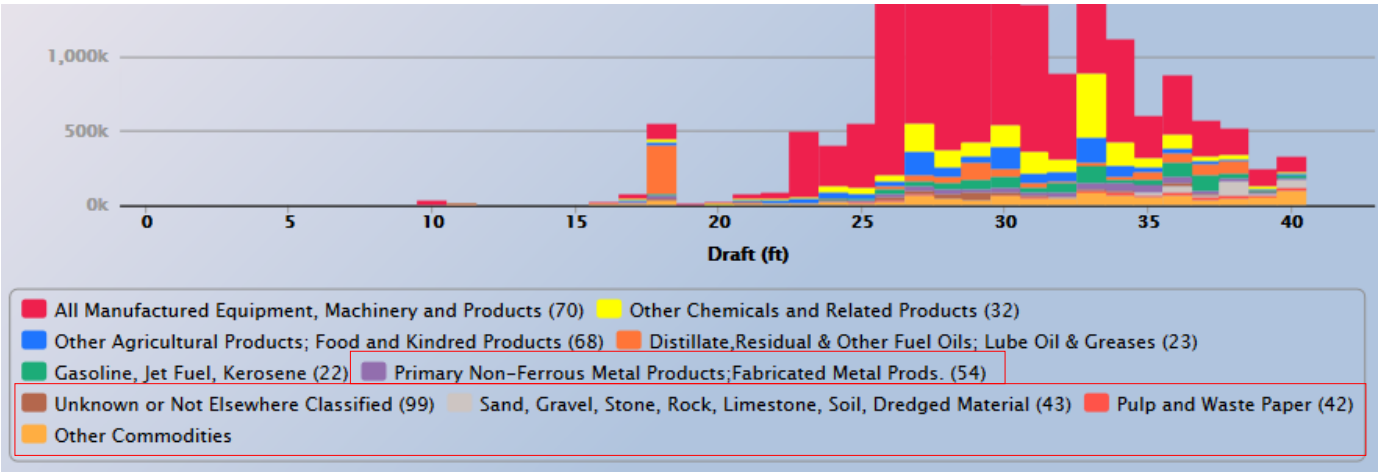
The default setting results in graphs that differentiate the top 5 commodity categories, any commodity type not in the top 5 is grouped together and shown as "Other Commodities".



Increasing the number in the **Top N Commodities** Filter results in more detail in the resulting bar graph.



The same query result with the **Top N Commodities** Filter set to 9 is shown below.



Note that the graph now displays additional commodity categories.

For this query the 4 additional commodity categories shown are

- Primary Non-Ferrous Metal Products
- Unknown or Not Elsewhere Classified
- Sand, Gravel, Stone, Rock, Limestone, Soil, Dredged Material
- Pulp and Waste Paper

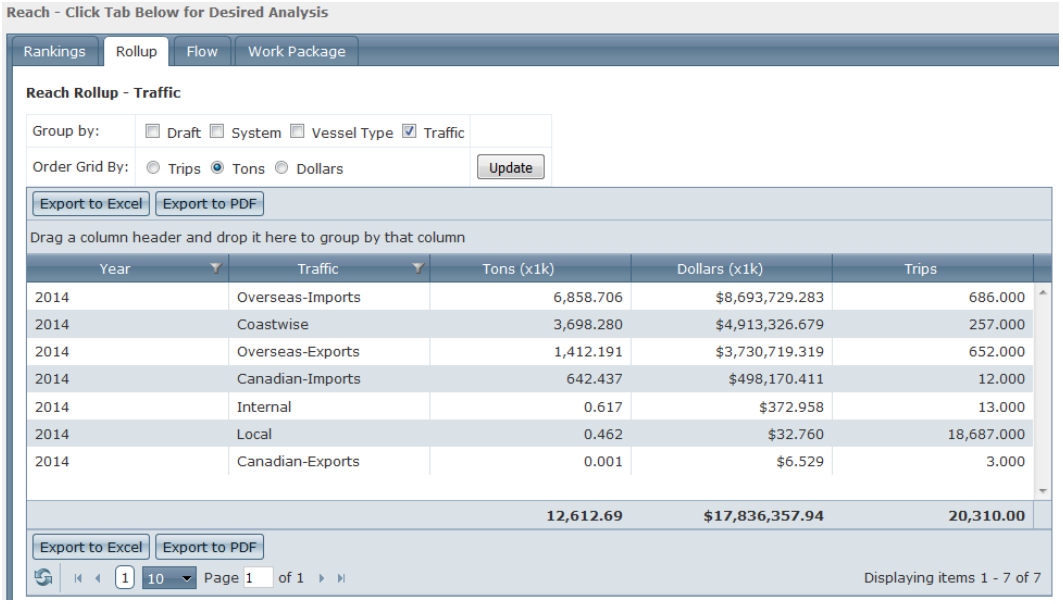
7 Interpreting results when shoaling has been included in the query

The results from a shoaling-impact scenario will have the same display as other CPT query results, with tables and graphs. However, the tables will only be displaying tonnage, traffic, or trips that would have been affected by the hypothetical shoaling. Graphs will show both affected traffic (grouped in a single color) and unaffected traffic (broken into multiple categories based on graph results).

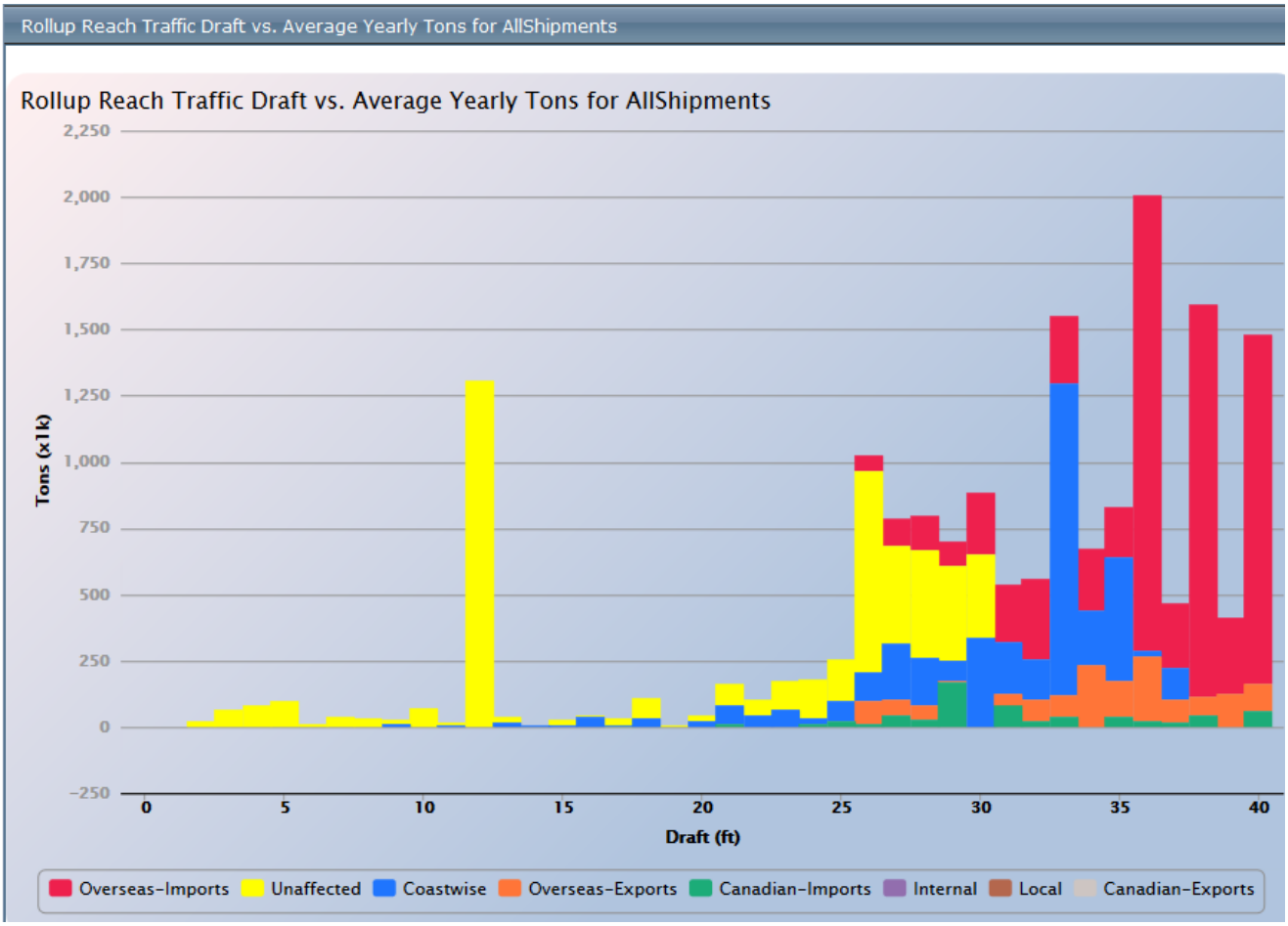
In this example, **10-ft shoaling has been selected for a single project (e.g. a 15ft channel would shoal in to 5 ft, any 45 ft channel would shoal in to 35ft, etc).** All possible traffic is included in the query.

When shoaling is enabled in a query, the results in the tables will only show the AFFECTED/disrupted shipments.

Sample table result from a shoaling-enabled query. Note that the table does not indicate what type of results you are viewing (shoaling-enabled or regular query results), however this information is included if you export to Excel. (See the section on *Exporting query results* for details.)



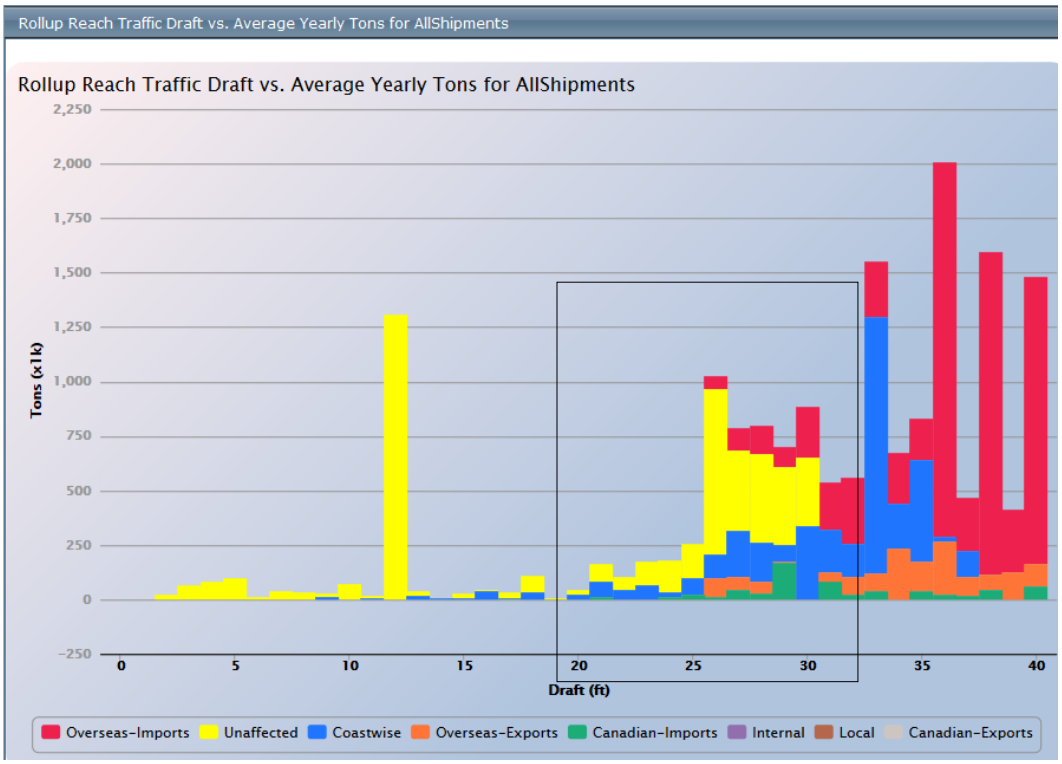
Sample graph from shoaling enabled query, showing both affected and unaffected traffic. Unaffected traffic is grouped together in one category.



Note: column colors do not consistently represent the same categories across queries and graphs. Always refer to figure legend.

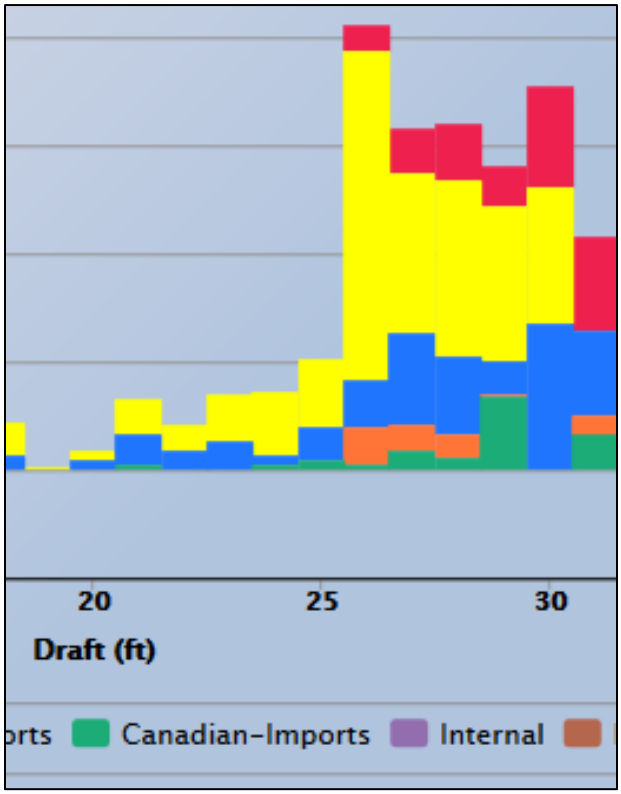
Shoaling-affected and -unaffected traffic with the same draft.

When viewing the graphs of shoaling-enabled query results it is possible to have unaffected and affected traffic in the same draft column. This result may seem counterintuitive. The graph below shows unaffected traffic (yellow) at some of the same drafts as shoaling-affected traffic (other colors) in the selected group of reaches. Shoaling was set to 10 feet.



The reason for this display of unaffected and affected traffic in the same draft column is that some shallower-draft vessels transit deep draft channels.

Examining the results at 25ft draft shows 3 categories of results:



- (yellow) 25ft draft vessels that only transit 35ft+ channels, hence unaffected by 10ft shoaling.

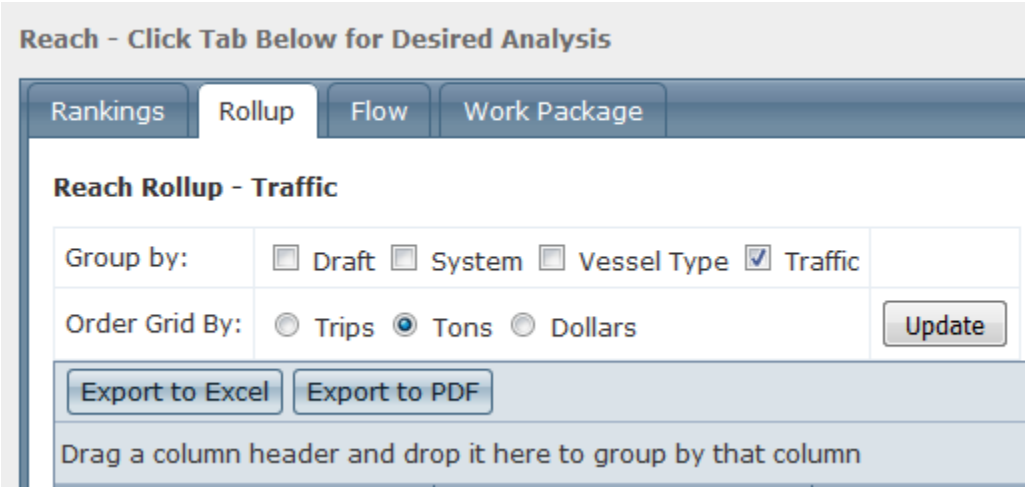
- (blue) 25ft draft Coastwise traffic vessels that transit channels shallower than 35ft, so 10ft of shoaling would impact this traffic.

- (green) 25ft draft Canadian-Imports traffic vessels that transit channels shallower than 35ft in this project, 10ft shoaling would disrupt this traffic.

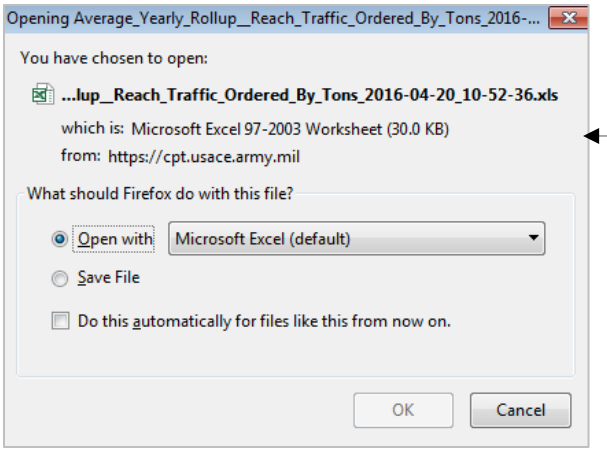
8 Exporting query results

Exporting tables to Excel or PDF

Results in any view can be exported to Excel or PDF files.



Users will be prompted to either open or save their file by a pop-up window (this may appear different depending on your browser).

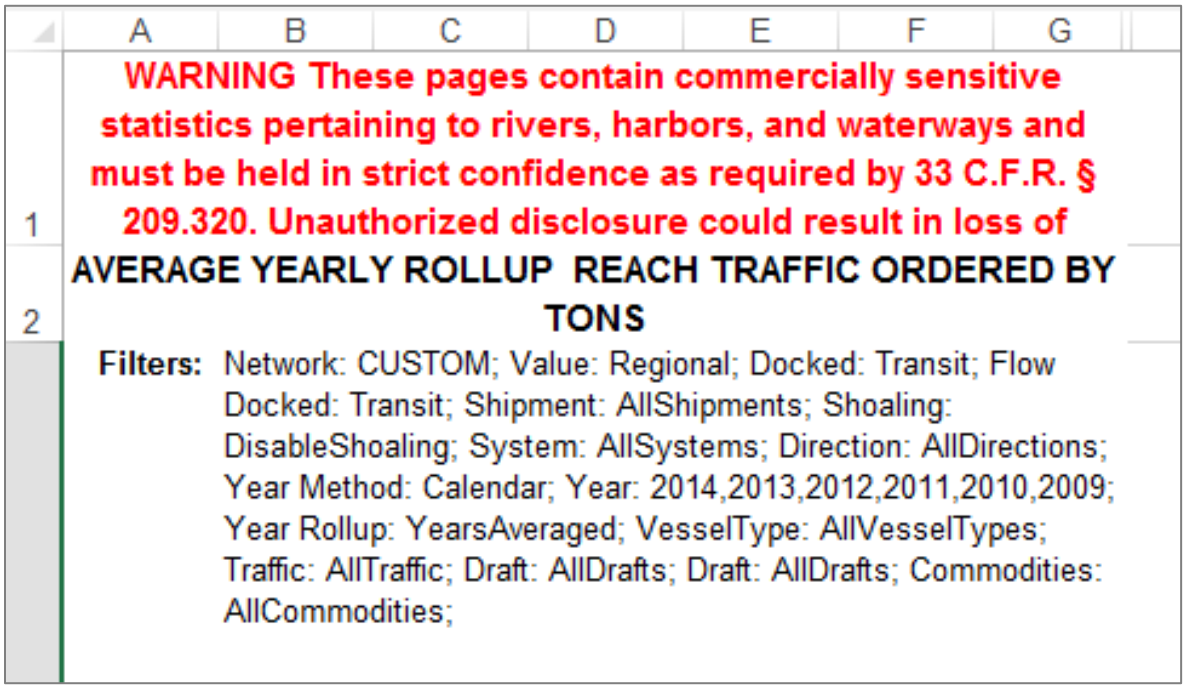


Firefox prompt window

Internet explorer prompt window

The exported Excel file will have 2 worksheets, the first worksheet contains a non-disclosure reminder and information about the filters used in the query.

Example of exported Excel file containing CPT query results.



	A	B	C	D	E	F	G
1	**WARNING These pages contain commercially sensitive statistics pertaining to rivers, harbors, and waterways and must be held in strict confidence as required by 33 C.F.R. § 209.320. Unauthorized disclosure could result in loss of**						
2	**AVERAGE YEARLY ROLLUP REACH TRAFFIC ORDERED BY TONS**						
	Filters: Network: CUSTOM; Value: Regional; Docked: Transit; Flow Docked: Transit; Shipment: AllShipments; Shoaling: DisableShoaling; System: AllSystems; Direction: AllDirections; Year Method: Calendar; Year: 2014,2013,2012,2011,2010,2009; Year Rollup: YearsAveraged; VesselType: AllVesselTypes; Traffic: AllTraffic; Draft: AllDrafts; Draft: AllDrafts; Commodities: AllCommodities;						

Tip: EXPORTED EXCEL FILES <u>DO NOT</u> CONTAIN LOCATION INFORMATION. You must add this information to the file yourself if you wish to have a record.

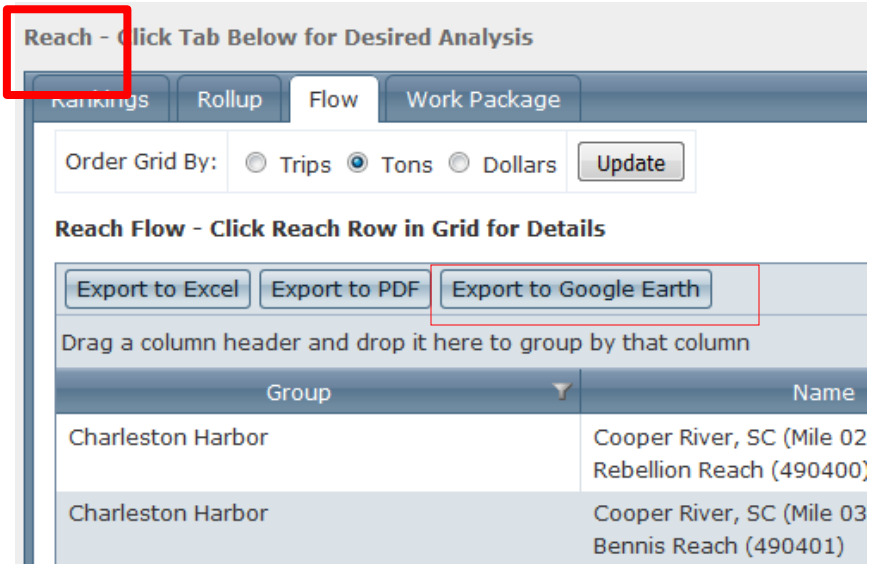
Suggestion: take a screenshot of the selected locations and insert into the excel file later.

Exporting files to Google Earth

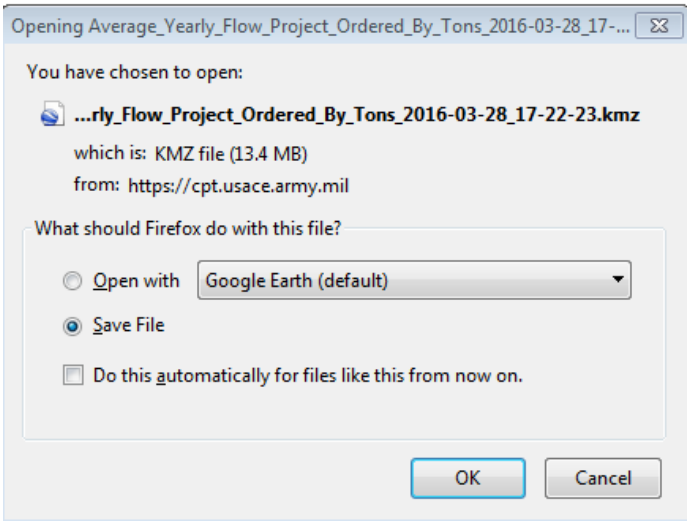
Flow Results

Select the FLOW tab to view the results table showing commodity flows. For the most detailed information use the **Reports: Reach** view.

Under the FLOW tab there is an option to 'Export to Google Earth', this generates a .kmz file that includes the data shown in the table.



To use .kmz files you must have Google Earth pre-installed on your computer, a conversion option also exists within ArcMap.



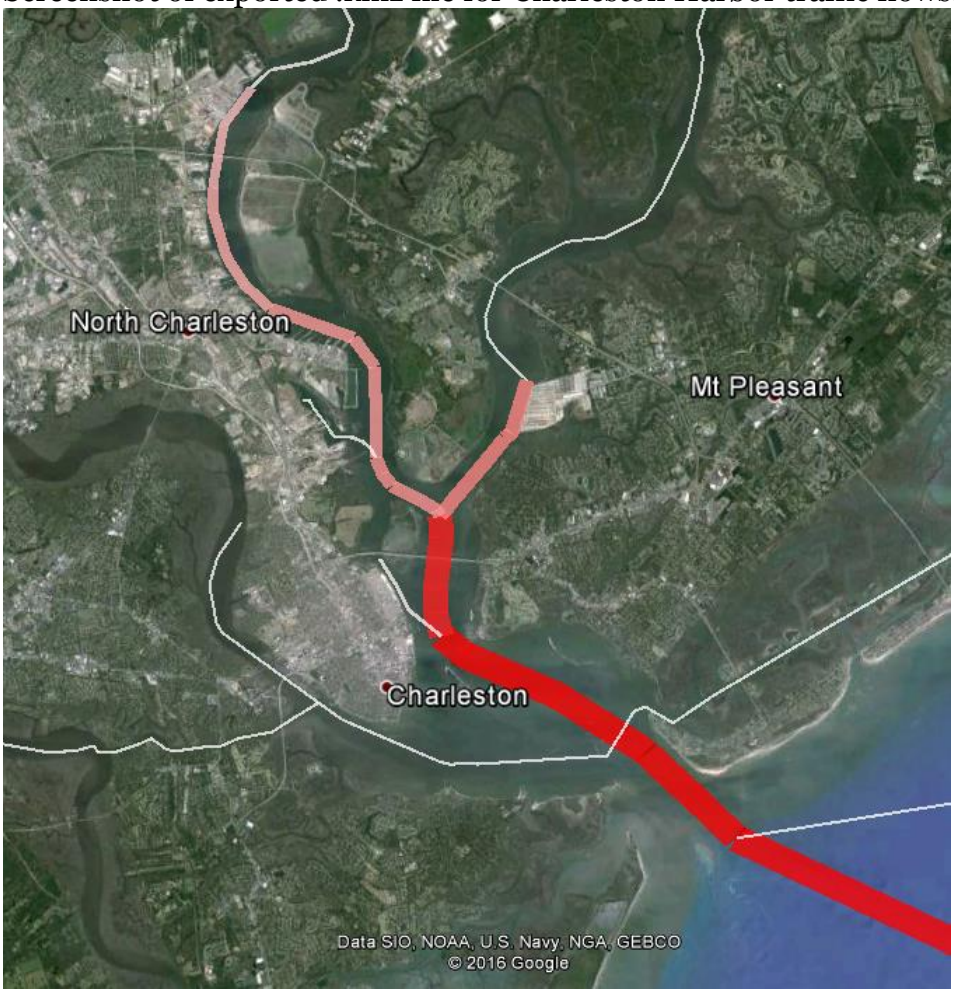
Users will be prompted to open or save the .kmz file.

File names for exported .kmz files will include the date of your export but not location

Exported KMZ files will include only the information shown in the associated Flow-tab table, the location information is translated into a spatial display when opened in GoogleEarth.

Note that kmz files **do not include information about the years selected** in analysis or other filters used such as vessel draft.

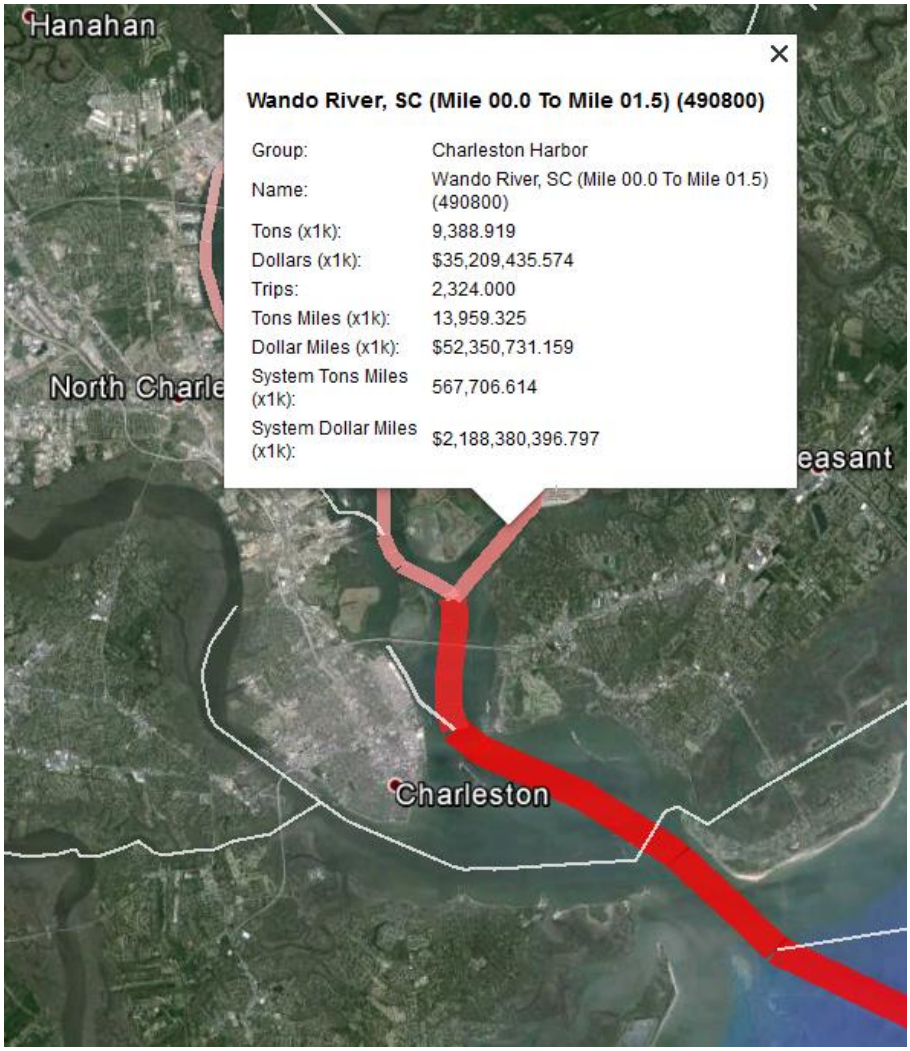
Screenshot of exported .kmz file for Charleston Harbor traffic flows.



In this image the lower values are shown as narrower and whiter lines, higher values are shown in thicker red shades, calculated automatically using a log scale.

CPT users can choose to scale both line color and line width on the initial Preferences page within the section for 'Grid, Charting, and GIS Calculation/ Display" under the filter GIS.

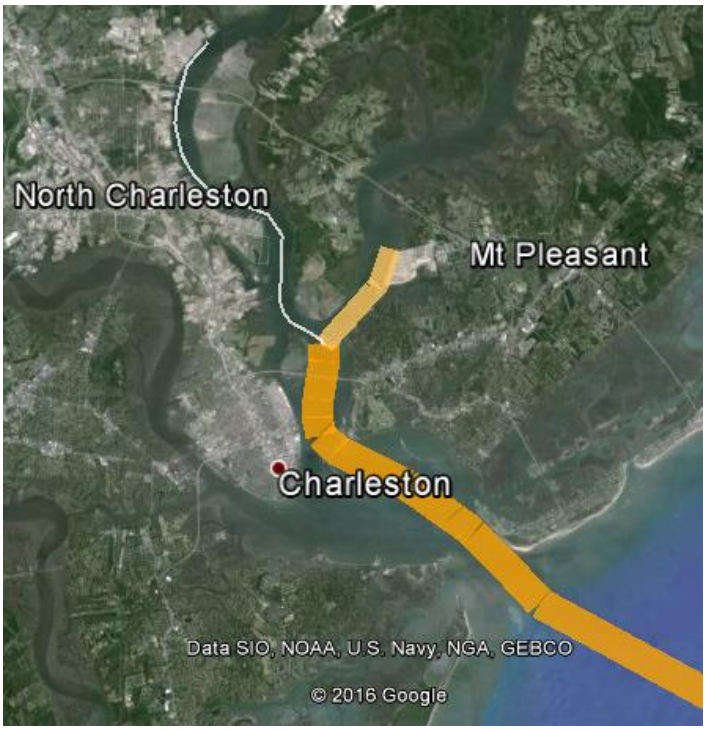
Within GoogleEarth users can click on a reach to display associated Flow information for a single reach.



Note that the pop-up does NOT include information about the years or commodities included in the query results.

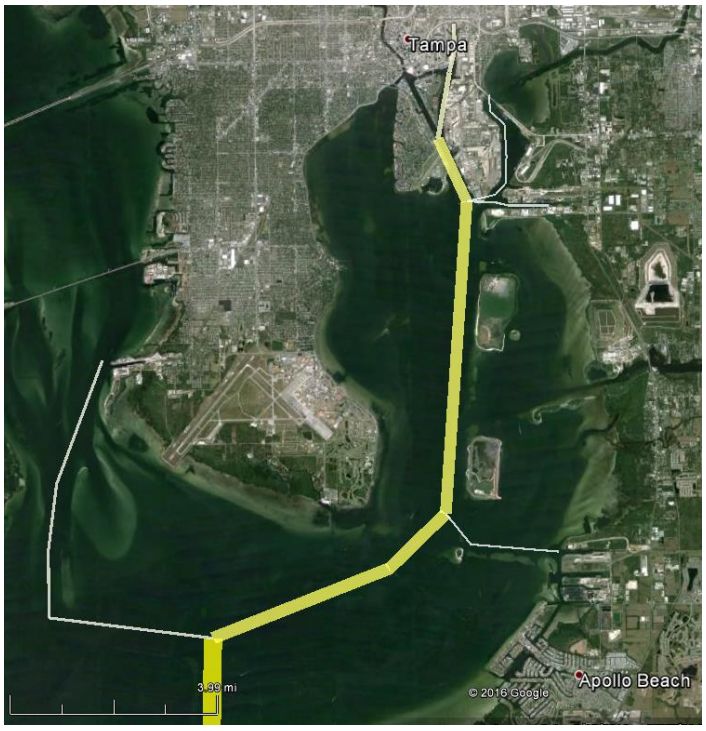
Users are reminded to make notations of query details in the .kmz file name for their future reference.

Examples of Flow Tab exported graphics in GoogleEarth



Screenshot of **reach** level **flow** results for the commodity category "Barley, Rye, Oats, River and Sorghum Grains (64)" in Charleston Harbor, 2014.

GIS filter custom settings in CPT
Scale = Linear
Scale Display = Both
Min Gradient Color = White
Max Gradient Color = Orange
All others to default

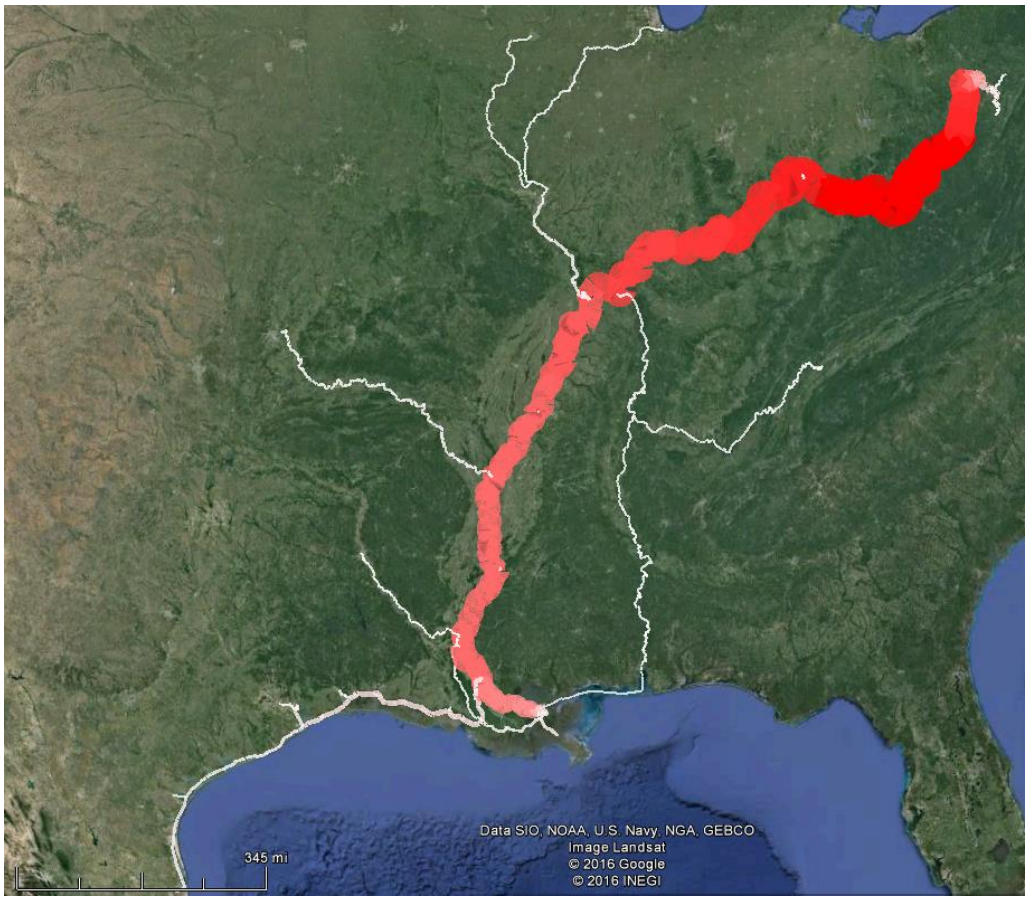


Screenshot of **reach** level **flow** results for commodity category "Petroleum and Petroleum Products (2)" in Tampa Harbor, 2014.

GIS filter custom settings in CPT
Scale = Logarithmic
Scale Display = Both
Max Gradient Color = Yellow

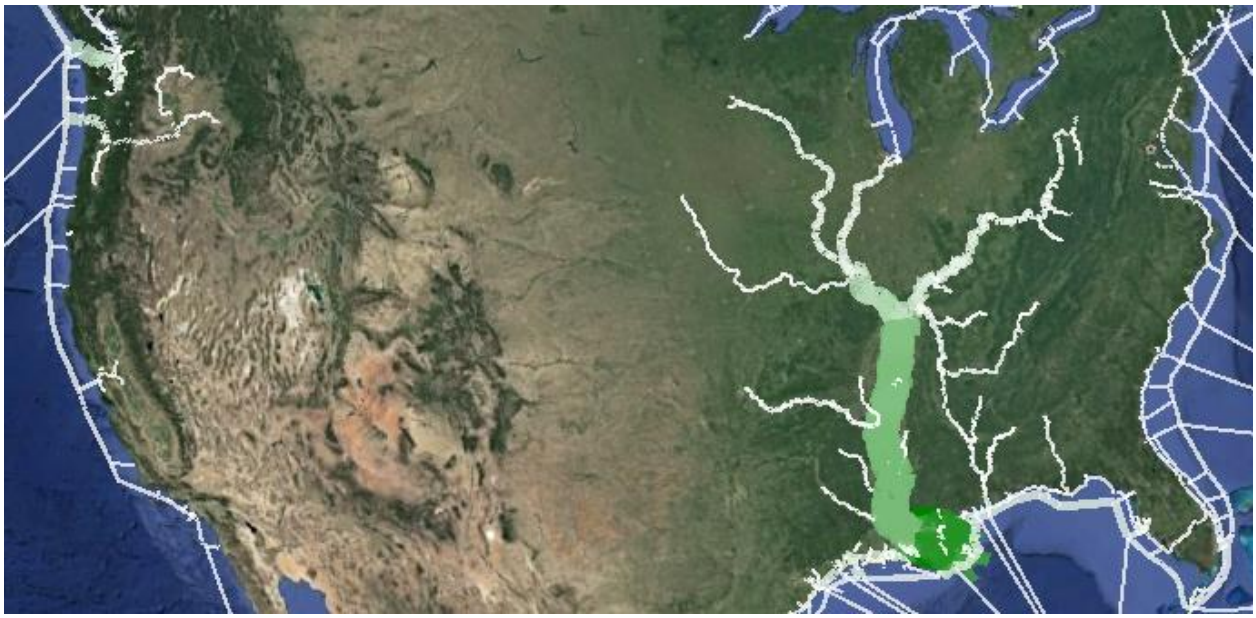
All others to default

Screenshot of **reach** level **flow** results for Pittsburgh District, averaged for years 2011-2014, commodity category “Primary Manufactured Goods (5)”.



GIS filter settings
Scale = Linear
Scale Display = Both
Max Line Width (pixels) = 30
Max Gradient Color = Red
All others to default

Screenshot below shows **reach** level **flow** results for Mississippi Valley Division, Portland District, and Seattle District, average for years 2011-2014, commodity category “Soybeans (6255)”.

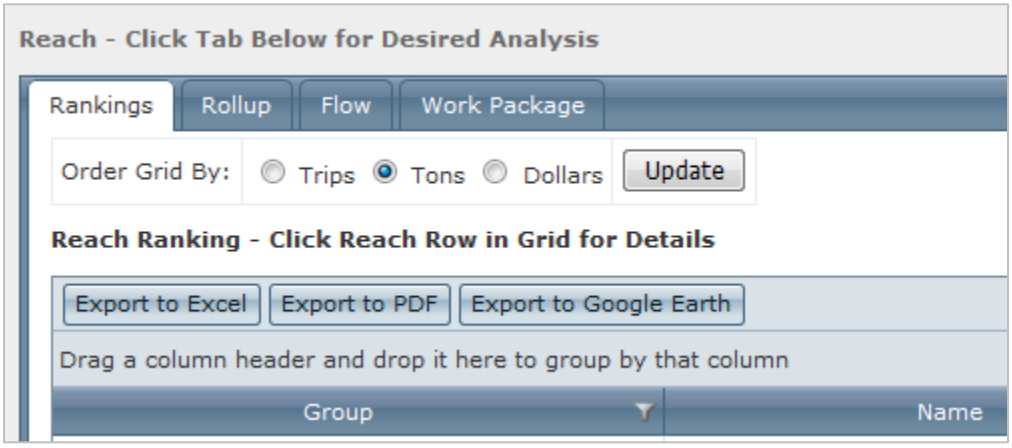


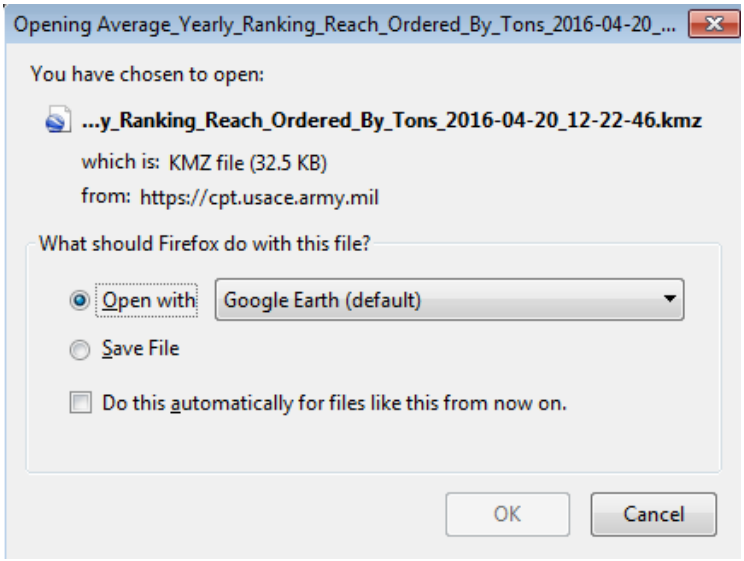
GIS filter settings in CPT:
Scale = Linear,
Max Line Width (pixels) = 35,
Min Gradient Color = White,
Max Gradient Color = Green,
All others to default

Rankings Results

Users can export results from the Rankings tab to Google Earth. We recommend using the **Reach** view as it will more accurately assign categorical information values to the correct spatial location. (Using the **Project** view will assign the same value to all reaches within a project)

Click on the Export to Google Earth button



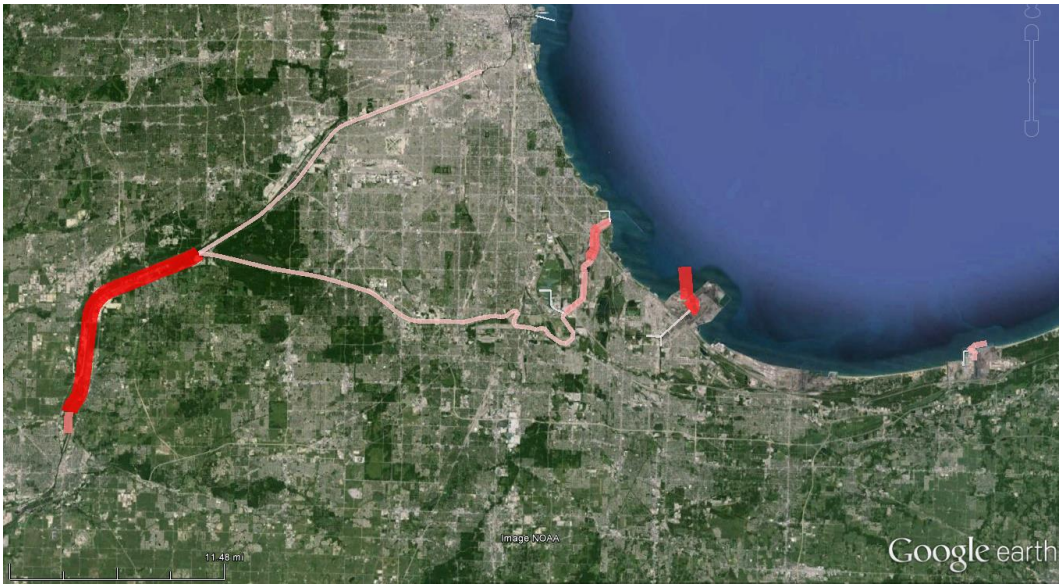


Users will be prompted to open or save the .kmz file.

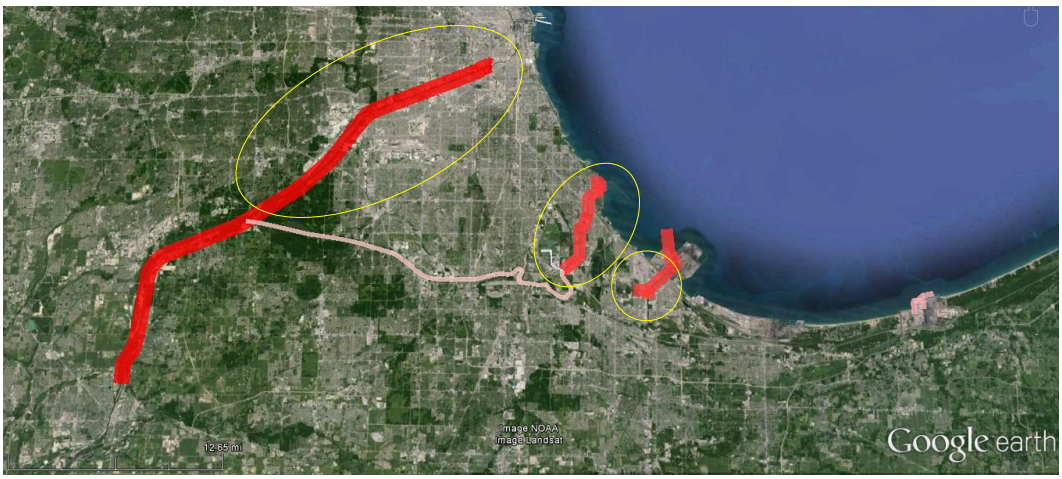
File names for exported .kmz files will include the date of your export but <u>not</u> location

CPT users can choose to adjust both line color and line width on the initial **Preferences** page within the section for 'Grid, Charting, and GIS Calculation/ Display" under the filter GIS.

Reach-level **Rankings** view for selected channels in the Chicago area.



The same data exported as Project-level Rankings. *Note how this view assigns a single value to all reaches within a project, resulting in loss of spatially-nuanced information. Major differences for this example are circled in yellow below.*



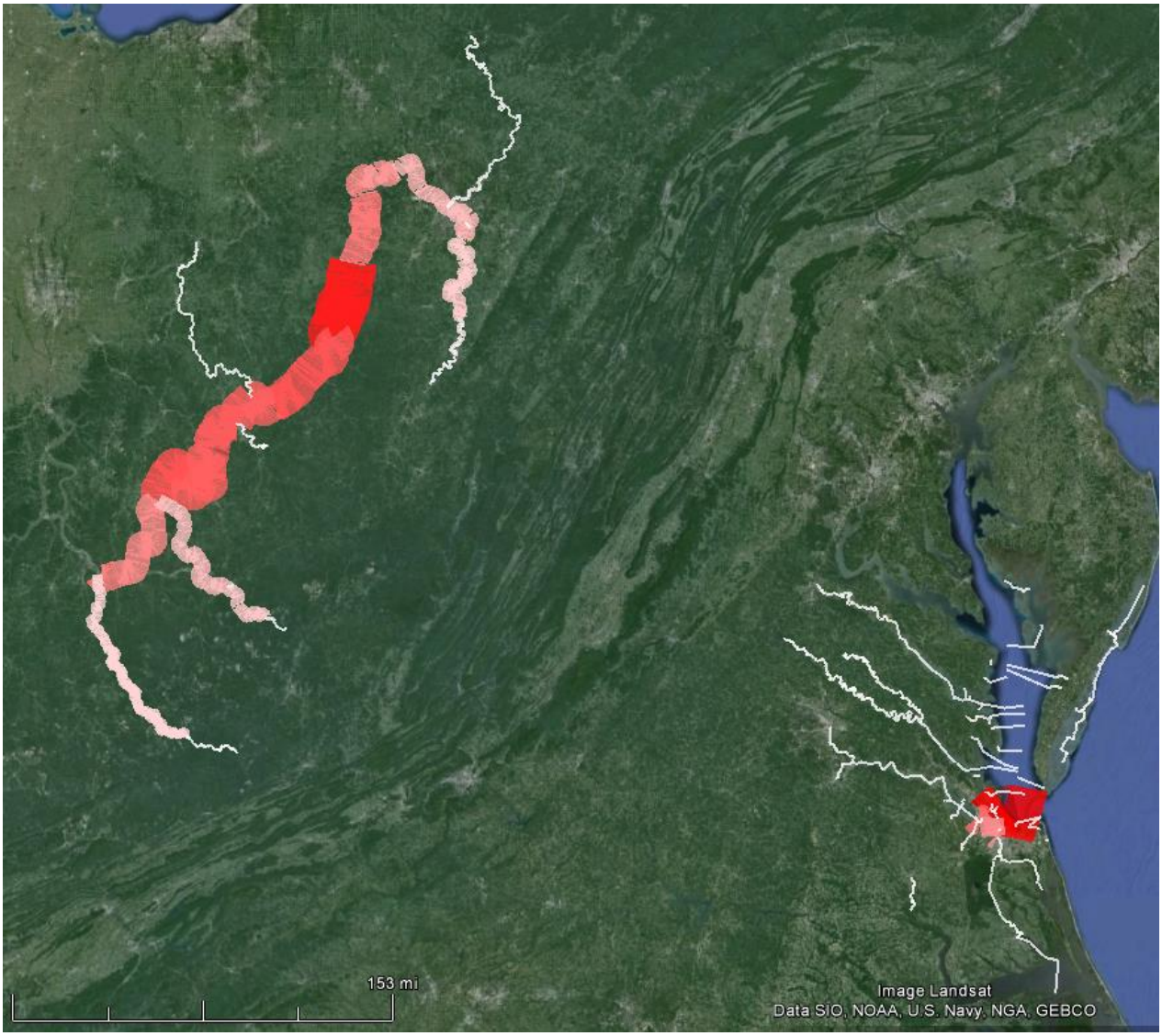
Examples of Rankings Tab exported graphics in GoogleEarth

Screenshot of reach level **rankings** results for Mississippi Valley Division, Portland District, and Seattle District, average for years 2011-2014, commodity category “Soybeans (6255)”.

GIS	
Style:	Line / Polygon
Scale:	Linear / Logarithmic
Scale By:	Trips / Tons / Dollars
Scale From:	Minimum / Maximum
Scale Display:	Color / Line Width / Both
Min Line Width (pixels):	2
Max Line Width (pixels):	35
Min Polygon Width (miles):	1
Max Polygon Width (miles):	10
Min Gradiant Color:	White, Red, Orange, Yellow, Green, Blue, Indigo, Violet
Max Gradiant Color:	White, Red, Orange, Yellow, Green

GIS filter settings:
Scale = Linear ;
Max Line Width (pixels) = 35;
Max Gradient Color = Green;
All other settings at default

Screenshot of reach level **rankings** results from Pittsburgh, Huntington, and Norfolk Districts, average for years 2011-2014, commodity category "Coal, Lignite, & Coal Coke (1)."

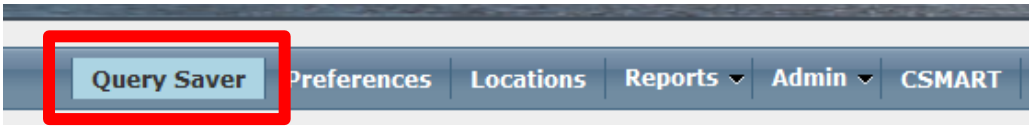


GIS filter settings
Scale = Linear
Max Line Width (pixels) = 40
Max Gradient Color = Red
All other settings at default

Exporting saved queries as .cpt files

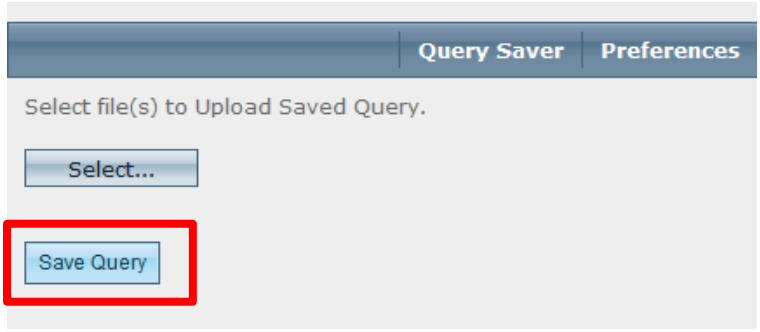
Query results that are exported to Excel do not contain information about reaches included in the query. Relevant reach information may be noted by the user in an associated file, or the user may generate and save a ".cpt" file directly from the Channel Portfolio Tool.

Users should set their filters on the Preferences page, and select relevant reaches on the Locations page. From the results window users can click on the **Query Saver** tab in the menu bar.

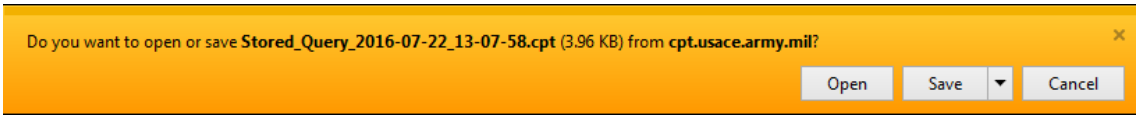


The Query Saver page presents two options, users can:

- Select an existing .cpt file to upload
- Save the current query by clicking on the **Save Query** button



After clicking the Save Query a prompt window will appear allowing users to select 'Save As' and rename the .cpt file. Users are advised to re-name the .cpt file to match any other relevant exported files (such as exported Excel files from the Reports page).

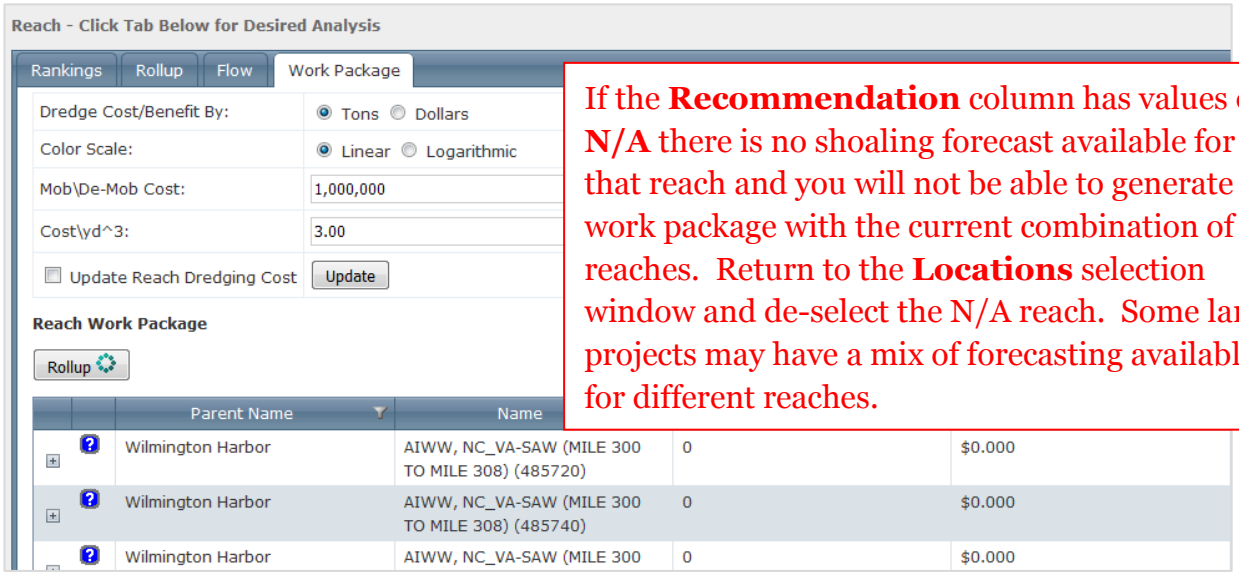


Depending on your web browser settings this prompt window may have a different appearance. If a window prompting you to Open or Save the file *does not appear* after clicking the **Save Query** button please check your computer's **Downloads** folder for the .cpt file.

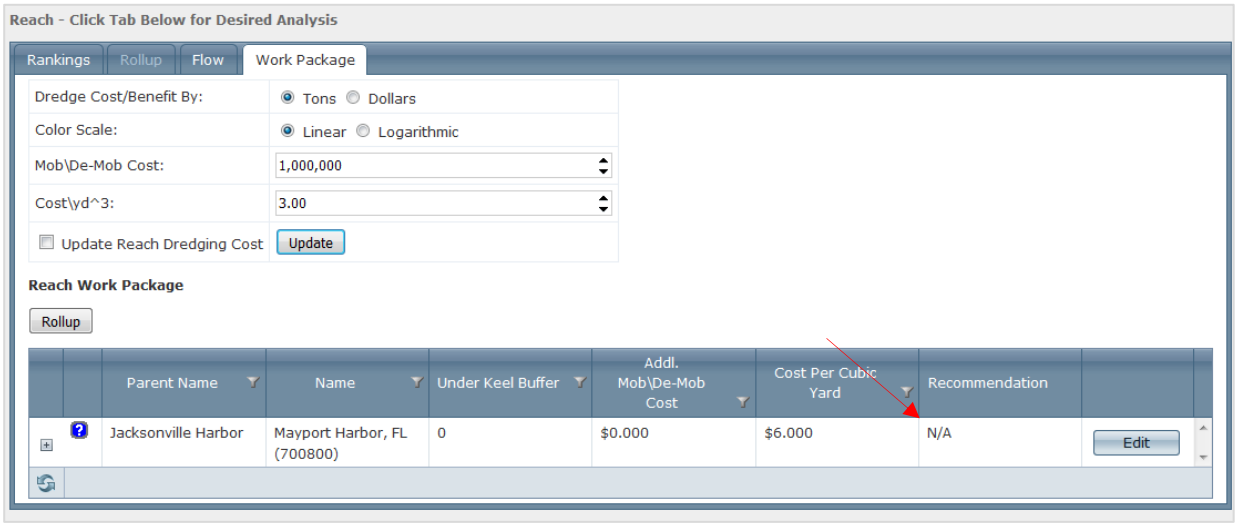
9 Viewing Work Package Results

Users must be in the **Reports: Reach** view to the Work Package Tab

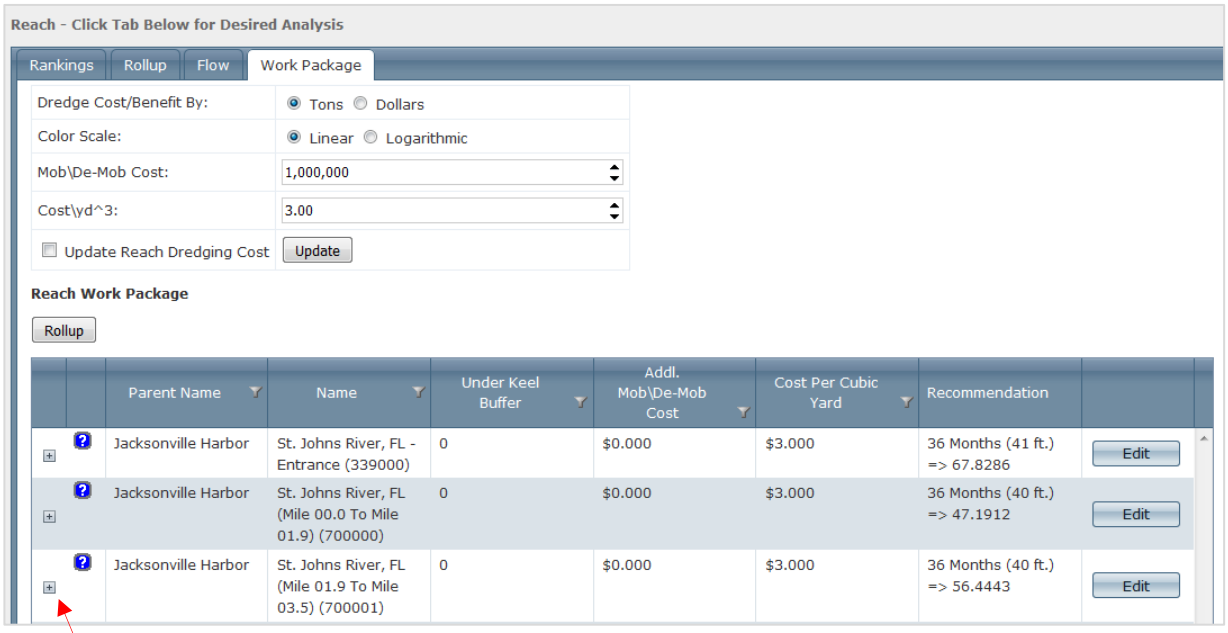
Sample display of query results under Work Package Tab



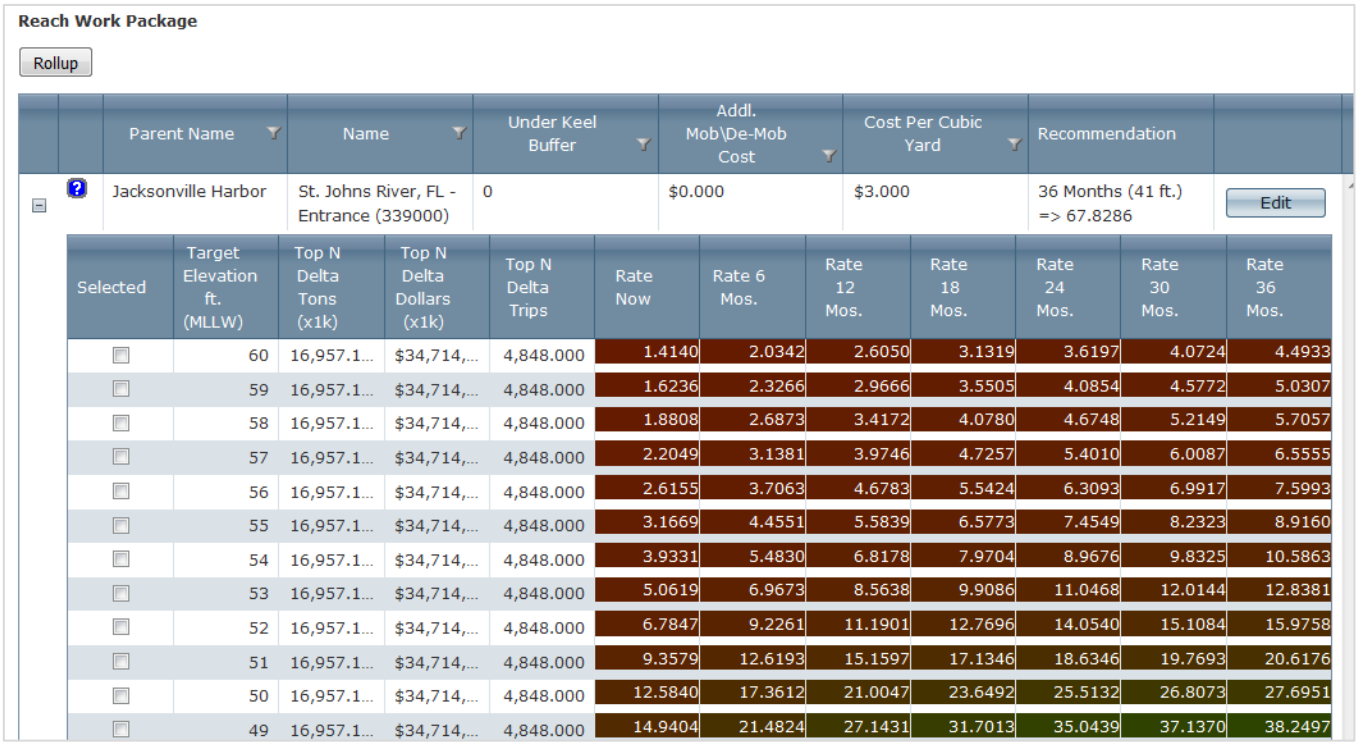
If the **Recommendation** column has values of **N/A** there is no shoaling forecast available for that reach and you will not be able to generate a work package with the current combination of reaches. Return to the **Locations** selection window and de-select the N/A reach. Some large projects may have a mix of forecasting available for different reaches.



Sample result of Jacksonville, FL reaches with shoaling forecasts available.



Click on the + to expand reach results. A new table will appear in the reach row.



This table displays the proxy -benefit/cost ratio (proxy -BCR) for dredging to a certain depth at a specified date (either now, or in the future) based on shoaling forecasts. The proxy -BCR is calculated using tonnage supported and the cost to remove sediment to get to a particular depth.

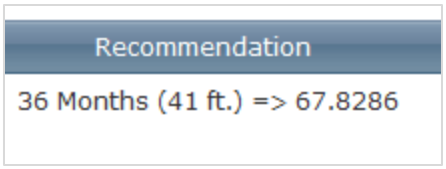
How to read the color-coded Work Package results table

This table presents a proxy -benefit/cost score based on target elevation, cost, and shoaling forecast. Brighter green colors correspond to higher scores, note that there may be a range of cells with similar scores that correspond to different depths. The results for an individual reach in the **Recommendation** column reflect the highest score.

	Parent Name	Name	Under Keel Buffer	Addl. Mob\De-Mob Cost	Cost Per Cubic Yard	Recommendation	
	Jacksonville Harbor	St. Johns River, FL - Entrance (339000)	0	$0.000	$3.000	36 Months (41 ft.) => 67.8286	Edit

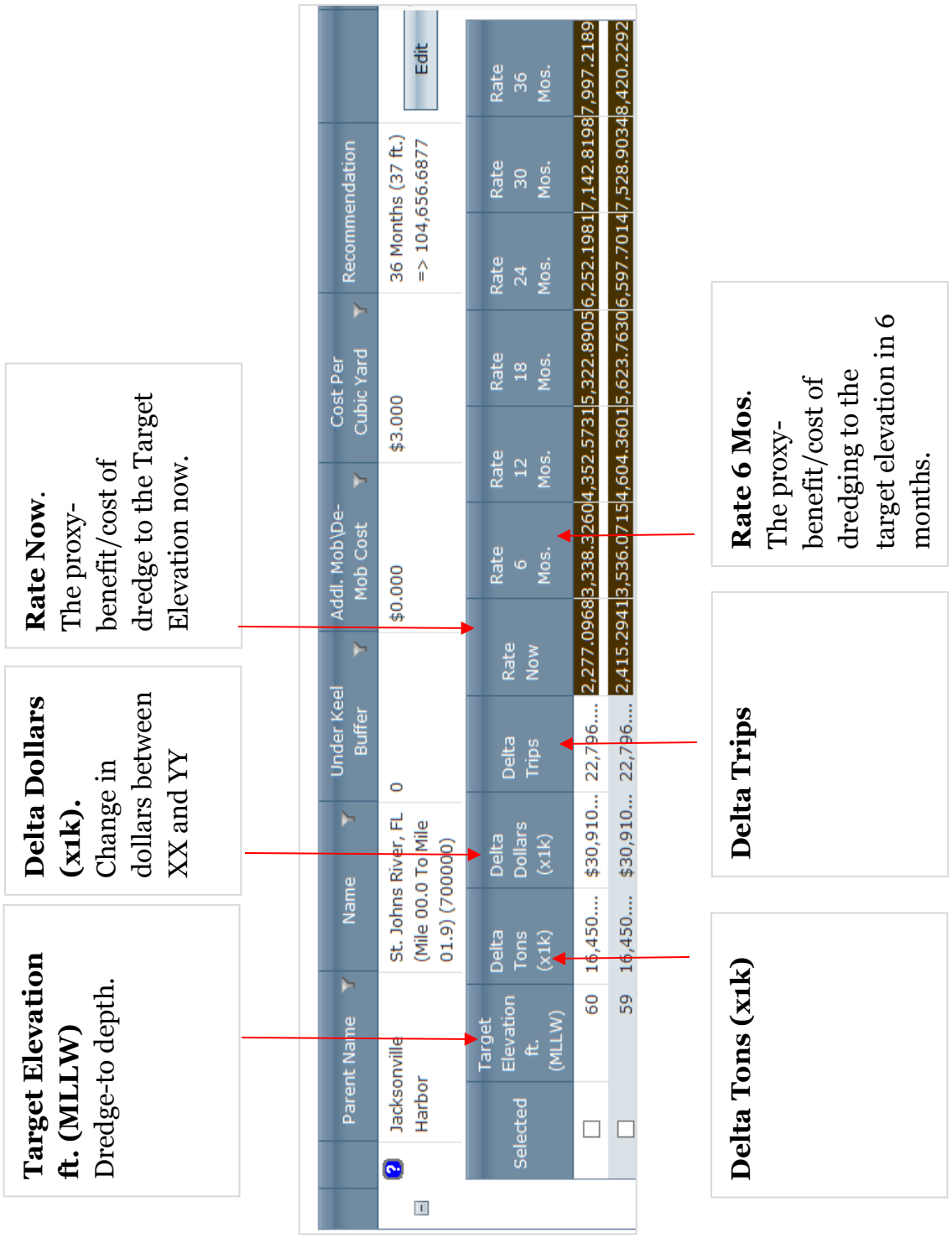
Selected	Target Elevation ft. (MLLW)	Top N Delta Tons (x1k)	Top N Delta Dollars (x1k)	Top N Delta Trips	Rate Now	Rate 6 Mos.	Rate 12 Mos.	Rate 18 Mos.	Rate 24 Mos.	Rate 30 Mos.	Rate 36 Mos.
☐	60	16,957.1...	$34,714,...	4,848.000	1.4140	2.0342	2.6050	3.1319	3.6197	4.0724	4.4933
☐	59	16,957.1...	$34,714,...	4,848.000	1.6236	2.3266	2.9666	3.5505	4.0854	4.5772	5.0307
☐	58	16,957.1...	$34,714,...	4,848.000	1.8808	2.6873	3.4172	4.0780	4.6748	5.2149	5.7057
☐	57	16,957.1...	$34,714,...	4,848.000	2.2049	3.1381	3.9746	4.7257	5.4010	6.0087	6.5555
☐	56	16,957.1...	$34,714,...	4,848.000	2.6155	3.7063	4.6783	5.5424	6.3093	6.9917	7.5993
☐	55	16,957.1...	$34,714,...	4,848.000	3.1669	4.4551	5.5839	6.5773	7.4549	8.2323	8.9160
☐	54	16,957.1...	$34,714,...	4,848.000	3.9331	5.4830	6.8178	7.9704	8.9676	9.8325	10.5863
☐	53	16,957.1...	$34,714,...	4,848.000	5.0619	6.9673	8.5638	9.9086	11.0468	12.0144	12.8381
☐	52	16,957.1...	$34,714,...	4,848.000	6.7847	9.2261	11.1901	12.7696	14.0540	15.1084	15.9758
☐	51	16,957.1...	$34,714,...	4,848.000	9.3579	12.6193	15.1597	17.1346	18.6346	19.7693	20.6176
☐	50	16,957.1...	$34,714,...	4,848.000	12.5840	17.3612	21.0047	23.6492	25.5132	26.8073	27.6951
☐	49	16,957.1...	$34,714,...	4,848.000	14.9404	21.4824	27.1431	31.7013	35.0439	37.1370	38.2497
☐	48	16,957.1...	$34,714,...	4,848.000	16.1745	23.8132	30.9749	37.4917	43.1703	47.7929	51.1039
☐	47	16,957.1...	$34,714,...	4,848.000	16.6936	24.8645	32.8335	40.5010	47.7295	54.3598	60.2073
☐	46	16,957.1...	$34,714,...	4,848.000	16.8858	25.2687	33.5734	41.7588	49.7702	57.5234	64.9022
☐	45	16,957.1...	$34,714,...	4,848.000	16.9405	25.3953	33.8287	42.2225	50.5521	58.7782	66.8525
☐	44	16,957.1...	$34,714,...	4,848.000	16.9558	25.4302	33.8977	42.3535	50.7942	59.2073	67.5684
☐	43	16,957.1...	$34,714,...	4,848.000	16.9572	25.4357	33.9137	42.3900	50.8613	59.3232	67.7691
☐	42	16,957.1...	$34,714,...	4,848.000	16.9572	25.4357	33.9143	42.3929	50.8713	59.3492	67.8246
☑	41	16,957.1...	$34,714,...	4,848.000	16.9572	25.4357	33.9143	42.3929	50.8715	59.3501	67.8286
☐	40	16,957.1...	$34,714,...	4,848.000	16.9572	25.4357	33.9143	42.3929	50.8715	59.3501	67.8286
☐	39	13,990.6...	$33,261,...	4,736.000	13.9907	20.9860	27.9814	34.9767	41.9720	48.9674	55.9627
☐	38	13,157.7...	$32,086,...	4,636.000	13.1578	19.7367	26.3156	32.8944	39.4733	46.0522	52.6311
☐	37	9,966.481	$30,687,...	4,460.000	9.9665	14.9497	19.9330	24.9162	29.8994	34.8827	39.8659
☐	36	9,029.631	$29,287,...	4,288.000	9.0296	13.5444	18.0593	22.5741	27.0889	31.6037	36.1185
☐	35	5,009.605	$26,175,...	3,954.000	5.0096	7.5144	10.0192	12.5240	15.0288	17.5336	20.0384
☐	34	3,350.157	$24,445,...	3,738.000	3.3502	5.0252	6.7003	8.3754	10.0505	11.7255	13.4006

The score (67.8286) reflects the tons supported per dredging dollar invested. This value is the proxy -benefit/cost ratio score.

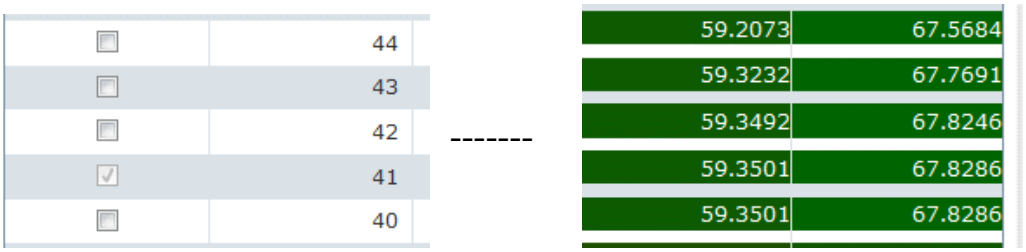


Reach Work Package Results – Column Headings

The figure below is an example of the expanded table of Work Package results for one reach in Jacksonville Harbor (listed under 'Parent Name' column).



Users are **not** restricted to selecting the pre-selected recommended depth for every reach in the work package.



☐	44
☐	43
☐	42
☑	41
☐	40

59.2073	67.5684
59.3232	67.7691
59.3492	67.8246
59.3501	67.8286
59.3501	67.8286

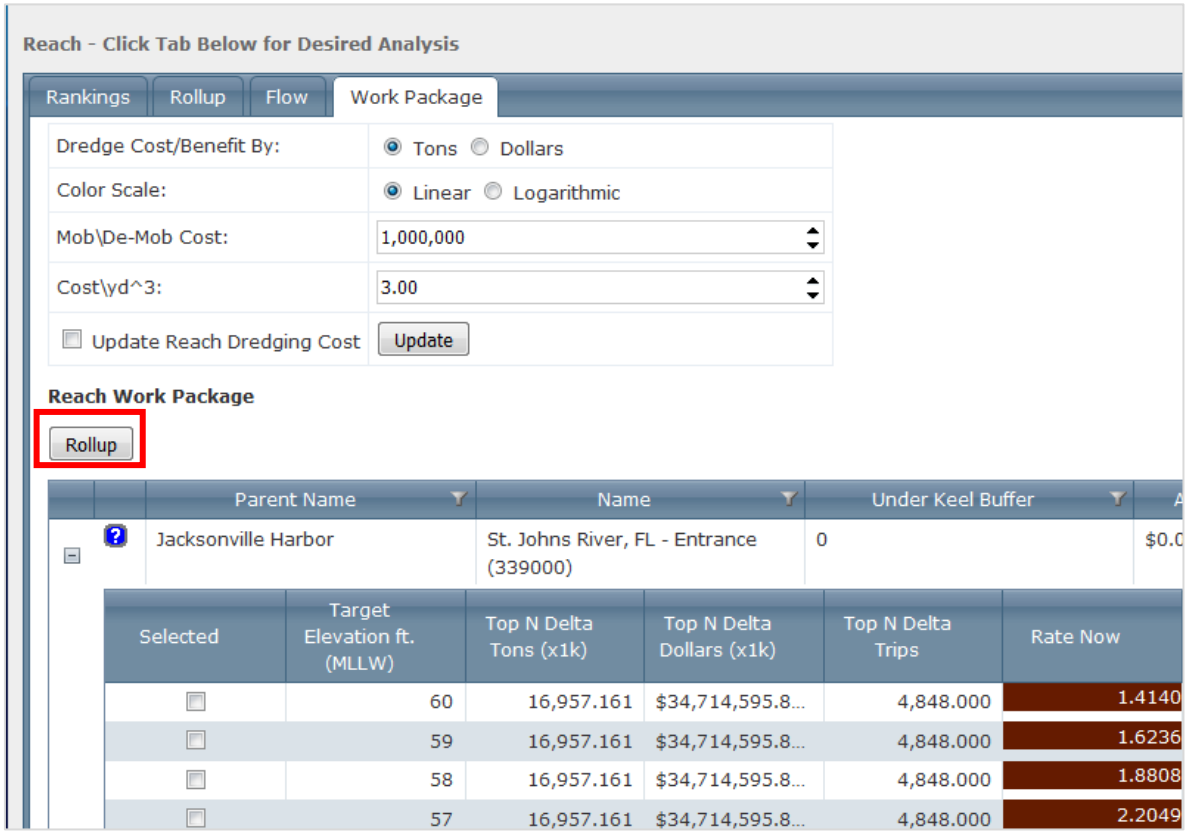
In this example the recommended depth is pre-selected to 41 ft (shown with a grey check mark), but that may not reflect operational necessities that require maintaining the channel at a different depth.

Selected	Target Elevation ft. (MLLW)
☐	60
☐	59
☐	58
☐	57
☐	56
☐	55
☐	54
☐	53
☐	52
☐	51
☐	50
☐	49
☐	48
☐	47
☐	46
☐	45
☑	44
☐	43
☐	42
☐	41

Simply identify the desired depth (shown under the Target Elevation ft. (MLLW) column) for a reach and check the box under the 'Selected' column.

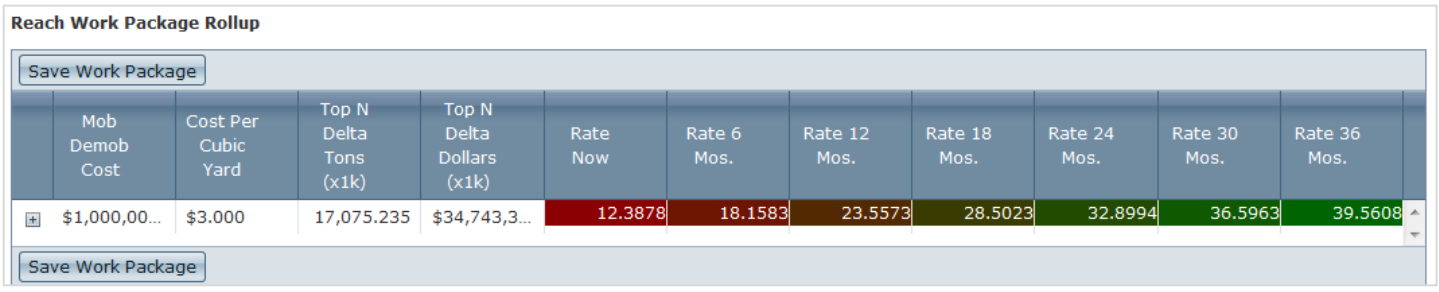
In this example the project manager has decided that the operational requirement is for 44ft of depth for this reach.

After selecting the desired Target Elevation for **each reach** in the work package (or accepting the defaulted resulted calculated by CPT) click the Rollup button.



CPT will calculate a rollup for the entire group of channels in the package.

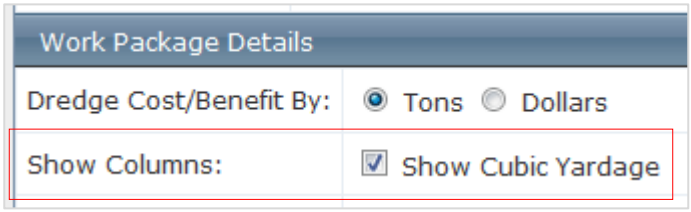
The Rollup will display spinning green dots while calculating. Please be patient! If the calculation takes longer than 5 minutes please log out, log in, and start again. Rollup Results appear at the bottom of the screen as a table with a single row.



The same color-scale output is used, the bright green cell has the highest proxy-BCR.

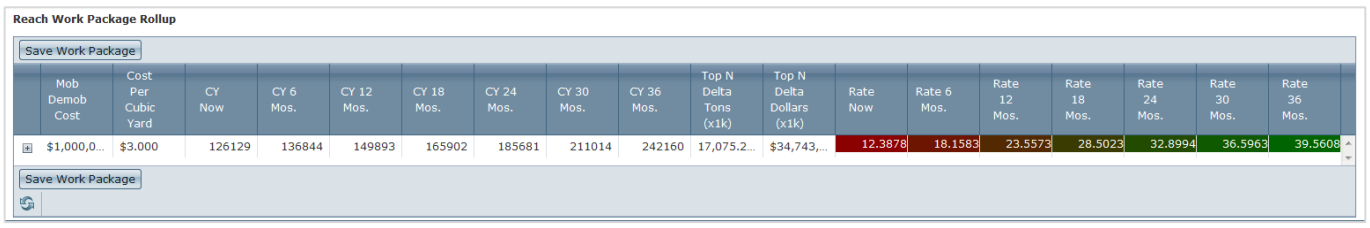
Including shoaling estimates (cubic yardage) in a work package

In the **Preferences** window, when setting the initial **Work Package Details** filter, users can select the SHOW CUBIC YARDAGE check box. This option allows users to see how the CSAT shoaling estimates included in their work package calculations change over time.



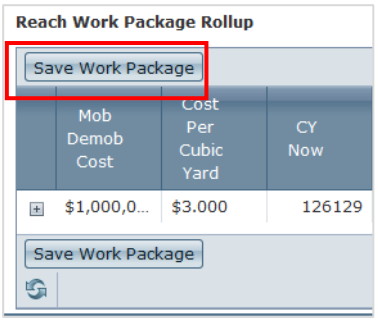
Selected	Target Elevation ft. (MLLW)	CY Now	CY 6 Mos.	CY 12 Mos.	CY 18 Mos.	CY 24 Mos.	CY 30 Mos.	CY 36 Mos.	Top N Delta Tons (x1k)	Top N Delta Dollars (x1k)	Top N Delta Trips	Rate Now	Rate 6 Mos.
☐	60	3664000	3834700	4006300	4178600	4351300	4524600	4698500	16,957....	$34,71...	4,848.0...	1.4140	2.0342
☐	59	3148100	3310800	3477400	3646700	3817300	3988800	4161000	16,957....	$34,71...	4,848.0...	1.6236	2.3266
☐	58	2672000	2821700	2974900	3131800	3294000	3460300	3629300	16,957....	$34,71...	4,848.0...	1.8808	2.6873
☐	57	2230200	2368500	2510900	2656900	2806300	2959100	3115600	16,957....	$34,71...	4,848.0...	2.2049	3.1381
☐	56	1827800	1954300	2083100	2216300	2354300	2496200	2641900	16,957....	$34,71...	4,848.0...	2.6155	3.7063
☐	55	1451500	1569800	1691200	1815100	1941300	2069800	2202500	16,957....	$34,71...	4,848.0...	3.1669	4.4551
☐	54	1103800	1213000	1324800	1439600	1557600	1678700	1802400	16,957....	$34,71...	4,848.0...	3.9331	5.4830
☐	53	783310	883580	986730	1092800	1201700	1313300	1427800	16,957....	$34,71...	4,848.0...	5.0619	6.9673
☐	52	499780	585640	676910	773280	873240	976090	1081900	16,957....	$34,71...	4,848.0...	6.7847	9.2261
☐	51	270690	338540	412380	491370	576650	667380	763280	16,957....	$34,71...	4,848.0...	9.3579	12.6193
☐	50	115840	155030	204870	264190	331310	404650	483040	16,957....	$34,71...	4,848.0...	12.5840	17.3612
☐	49	44996	61342	83154	112420	150550	199380	257770	16,957....	$34,71...	4,848.0...	14.9404	21.4824
☐	48	16130	22712	31632	43576	59464	80606	109090	16,957....	$34,71...	4,848.0...	16.1745	23.8132
☐	47	5263	7658	10973	15571	21943	30600	42195	16,957....	$34,71...	4,848.0...	16.6936	24.8645
☐	46	1408	2203	3385	5062	7376	10585	15030	16,957....	$34,71...	4,848.0...	16.8858	25.2687
☐	45	327	531	844	1345	2106	3243	4867	16,957....	$34,71...	4,848.0...	16.9405	25.3953
☐	44	26	73	163	310	507	804	1284	16,957....	$34,71...	4,848.0...	16.9558	25.4302
☐	43	0	1	6	23	67	151	293	16,957....	$34,71...	4,848.0...	16.9572	25.4357
☐	42	0	0	0	0	1	5	20	16,957....	$34,71...	4,848.0...	16.9572	25.4357
☑	41	0	0	0	0	0	0	0	16,957....	$34,71...	4,848.0...	16.9572	25.4357
☐	40	0	0	0	0	0	0	0	16,957....	$34,71...	4,848.0...	16.9572	25.4357

Rollup results will include the CY shoaling estimates.

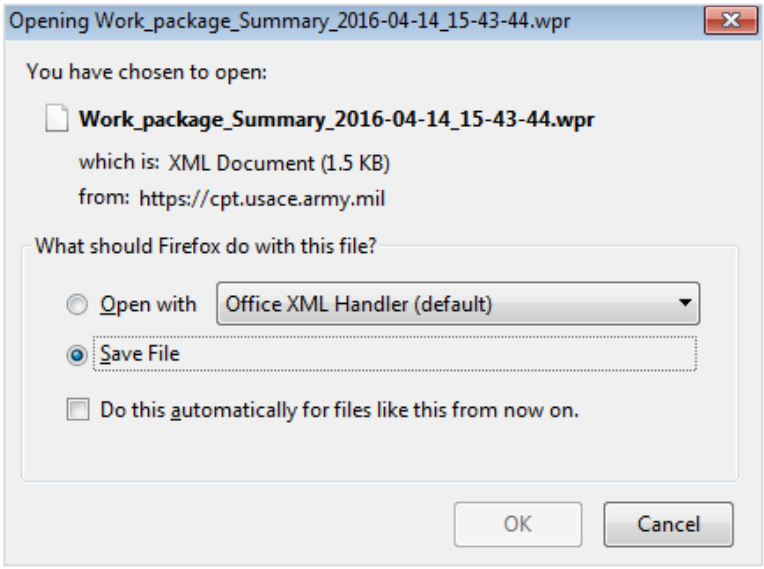


Saving Work Packages

Once you have successfully generated a Work Package Rollup you will be able to save your work package for later side-by-side comparison. Remember, if any of the **Recommendation** columns say 'N/A' the Rollup function will not work.



Next to the Rollup table click on the Save Work Package button to save the unique work package you have developed. This will generate a unique file type (.wpr) that is only readable within CPT.



A window will open prompting you to save the .wpr file.

Users should customize the .wpr file name with work package specifics, including reaches selected, depth, and years considered.

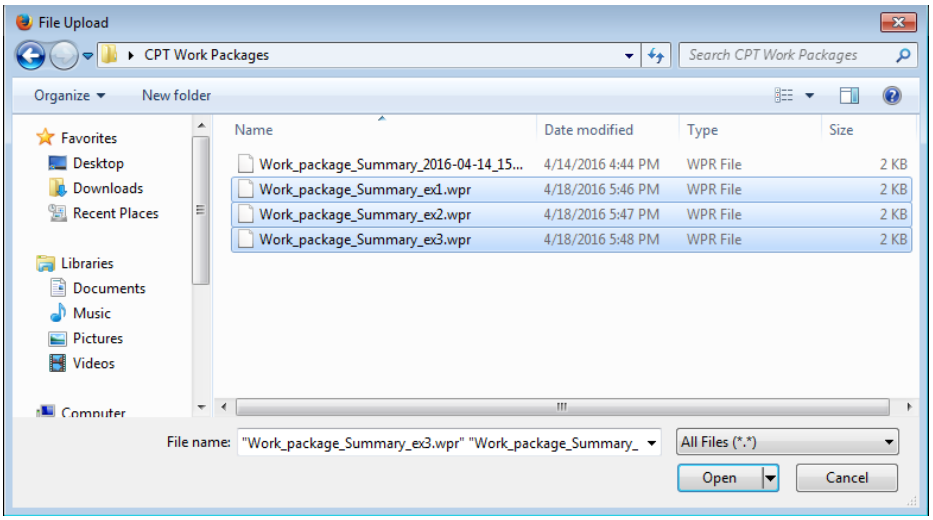
The filename is the only chance to create metadata, to give your future self a clue about what's in the file.

Users are advised to generate their custom .wpr files and *then* move on to comparing work packages.

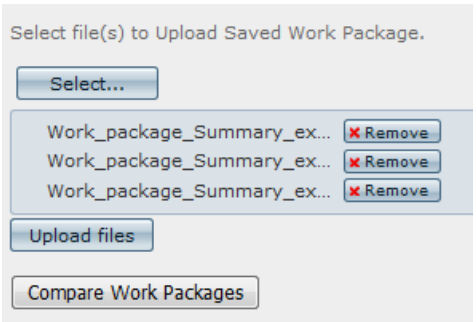
Comparing Work Packages

After generating multiple work package combinations (.wpr files) users can load the packages into CPT for side-by-side comparison.

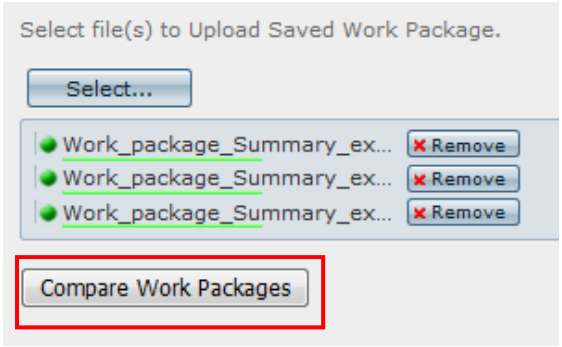
Select **Reports: Work Package** from the Reports drop-down menu at the top of the page.



Then select all of the work packages to be compared.



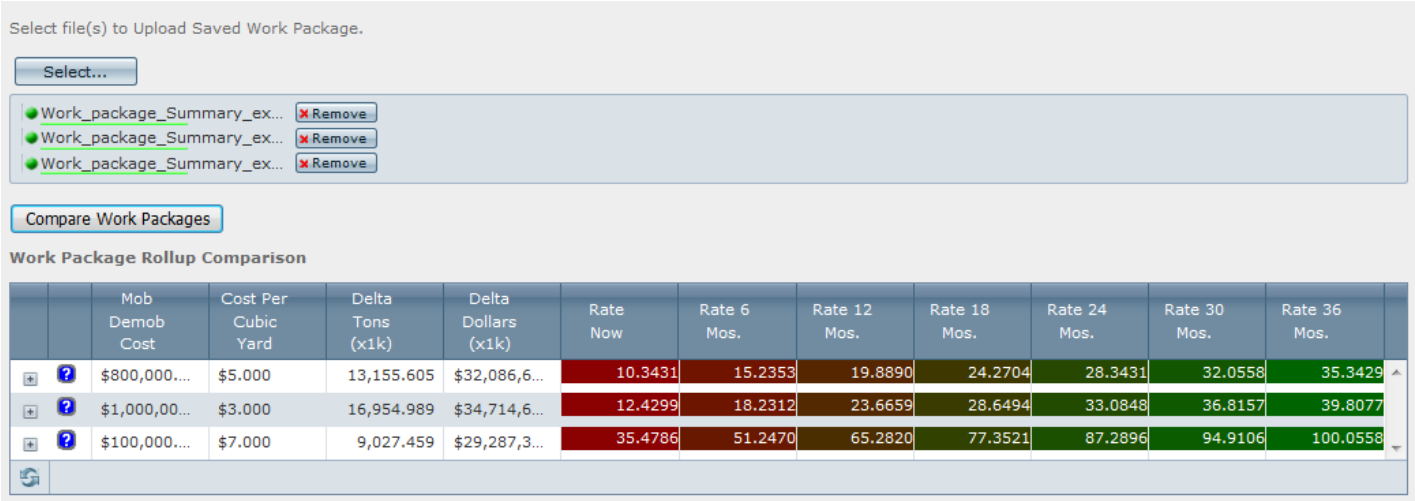
Selected work packages will appear in the list. Click on the Upload files button to load the .wpr files into CPT.



Files that have been successfully uploaded will display a green circle to the left of the filename.

Click on Compare Work Packages to generate the side-by-side comparison of the selected work packages.

A Work Package Rollup Comparison will appear on the same screen.



		Mob Demob Cost	Cost Per Cubic Yard	Delta Tons (x1k)	Delta Dollars (x1k)	Rate Now	Rate 6 Mos.	Rate 12 Mos.	Rate 18 Mos.	Rate 24 Mos.	Rate 30 Mos.	Rate 36 Mos.
⊞	?	$800,000....	$5.000	13,155.605	$32,086,6...	10.3431	15.2353	19.8890	24.2704	28.3431	32.0558	35.3429
⊞	?	$1,000,00...	$3.000	16,954.989	$34,714,6...	12.4299	18.2312	23.6659	28.6494	33.0848	36.8157	39.8077
⊞	?	$100,000....	$7.000	9,027.459	$29,287,3...	35.4786	51.2470	65.2820	77.3521	87.2896	94.9106	100.0558

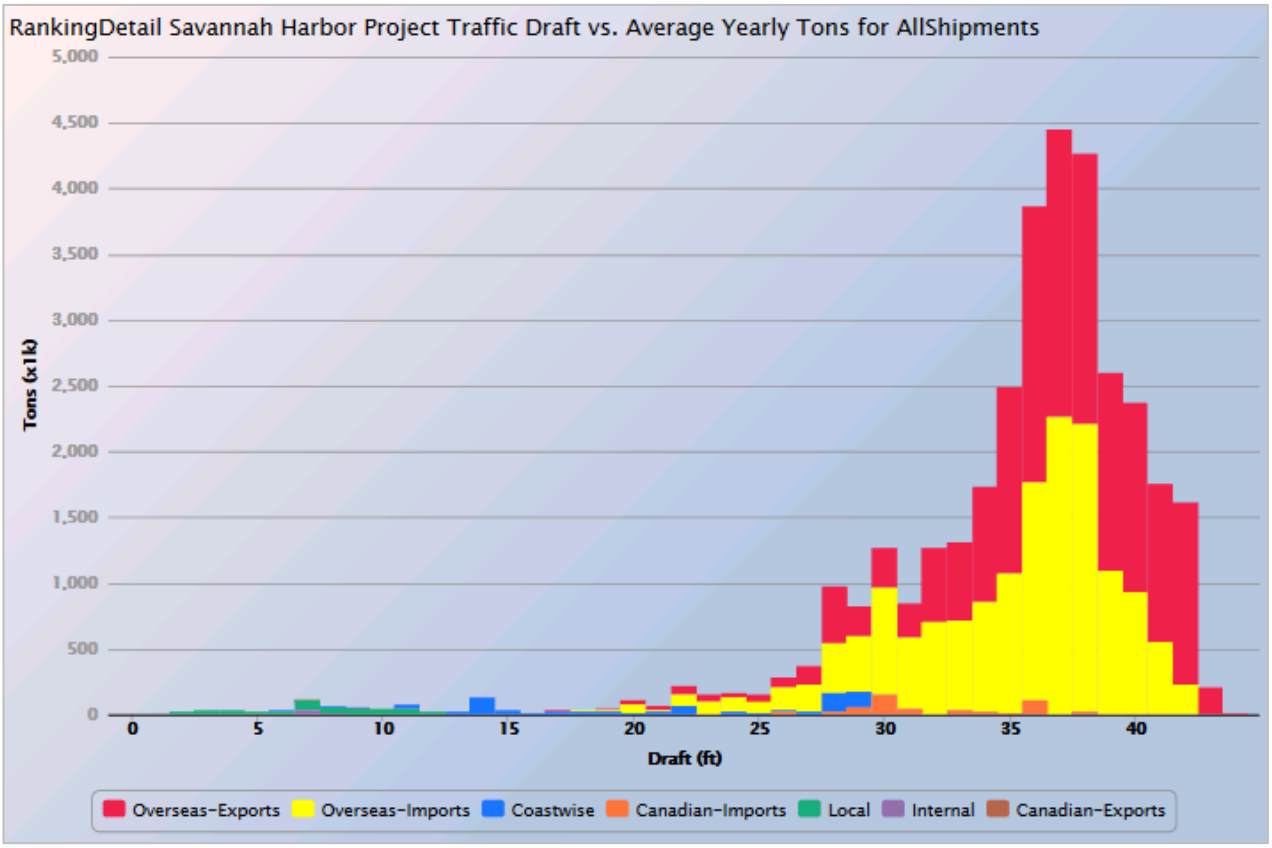
Note: Color-coding only applies *within* a work package, not across the compared packages.

In this example the top two rows have the same reaches but different Mob/Demob costs and Costs Per Cubic Yard. The third row has only two reaches, much lower Mob/Demob cost, but higher Cost Per Cubic Yard. Note the large difference in the proxy-BCR score for the third work package.

Remember: The Work Package Rollup Comparison **does not include reach listings**. Users of this function are advised to keep a list of specific reaches included in each work package in an easily retrievable location or to embed this information within the .wpr file name.

10 Sample Questions Tutorial

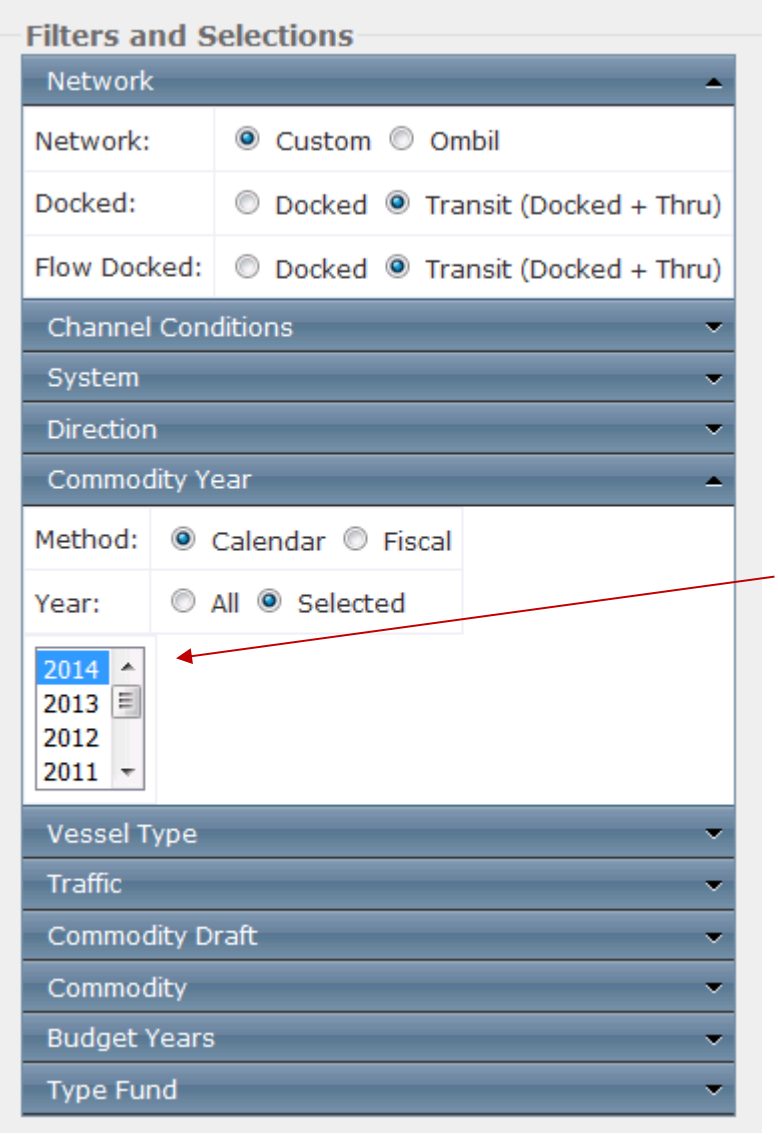
- How much tonnage transits at the deepest channel depth in the Savannah Harbor project?
- How many vessel trips were there in the Savannah Harbor project in 2014?
- How can I generate this type of graph?



Remember these caveats

- Results are based on the most recent year of data available (for this example)
- Data is for the entire year, there is no monthly or seasonal detail available
- This example includes all traffic types and all cargo types

Step 1. Select filters to use

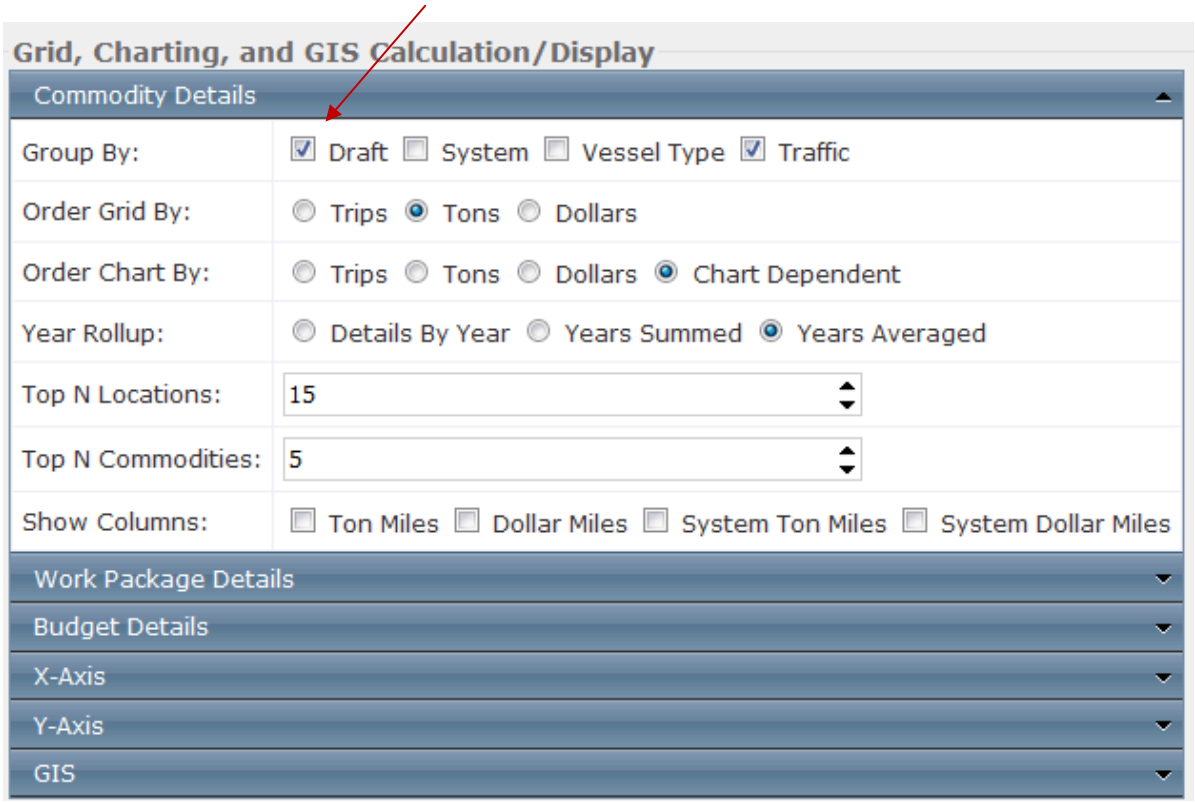


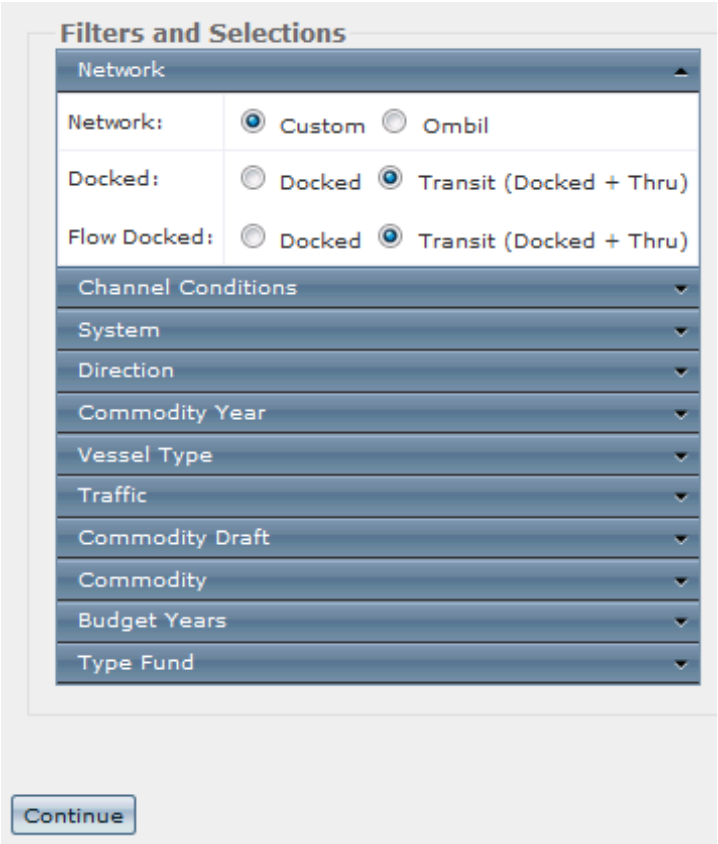
Default is most recent year ONLY.

For this example use the default year, 2014.

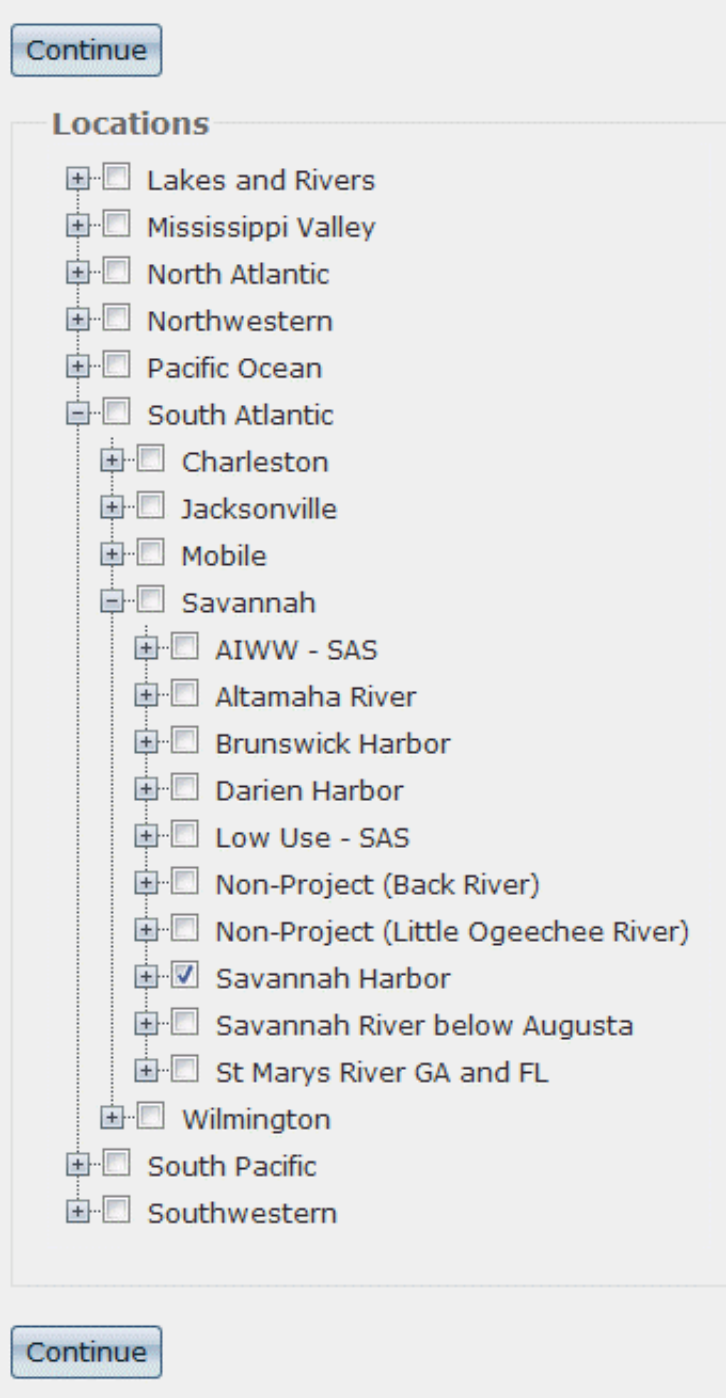
Leave the other filters in this group at their defaults, don't adjust them.

Step 2. In the set of filters for **Grid, Charting, and GIS Calculation/Display**, Check the box for DRAFT under the Commodity Details filter.





Step 3. Click CONTINUE after finishing with the filters, then you will advance to Location selection.



Step 4. Under LOCATIONS, expand the menu under South Atlantic Division, then Savannah District. To expand the menu click on the plus icon.

When the Savannah District Projects are visible check the box for Savannah Harbor project (this will automatically select all of the reaches within the project).

To see all reaches included in the location selection, click on the plus icon.

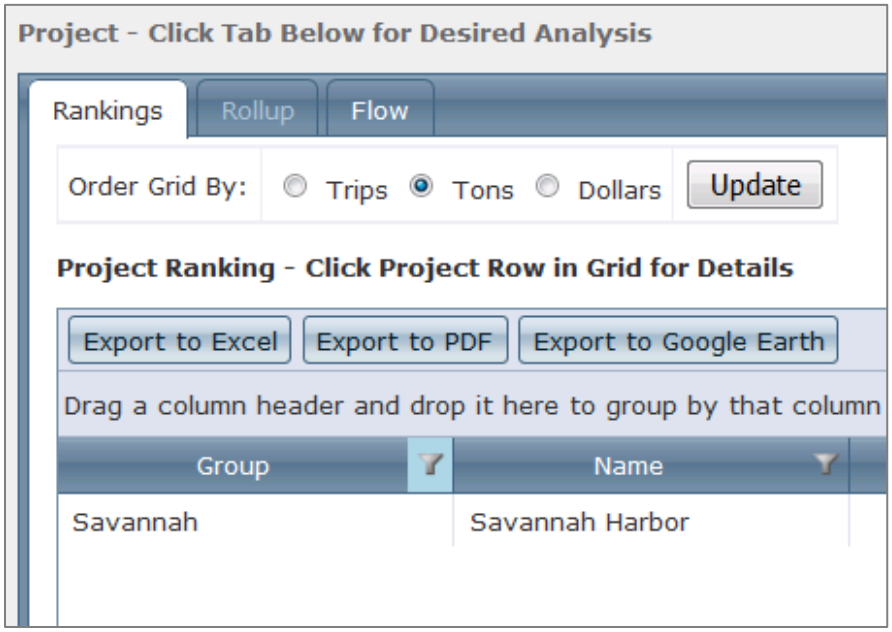
Note that commercial tonnage does move through some of the reaches included under the 'Savannah River below Augusta' project, but we have not included that in this example query. When in doubt, always check the reaches included in a project to ensure they reflect your desired spatial extent.

Step 5. When finished with Locations click on the Continue button.

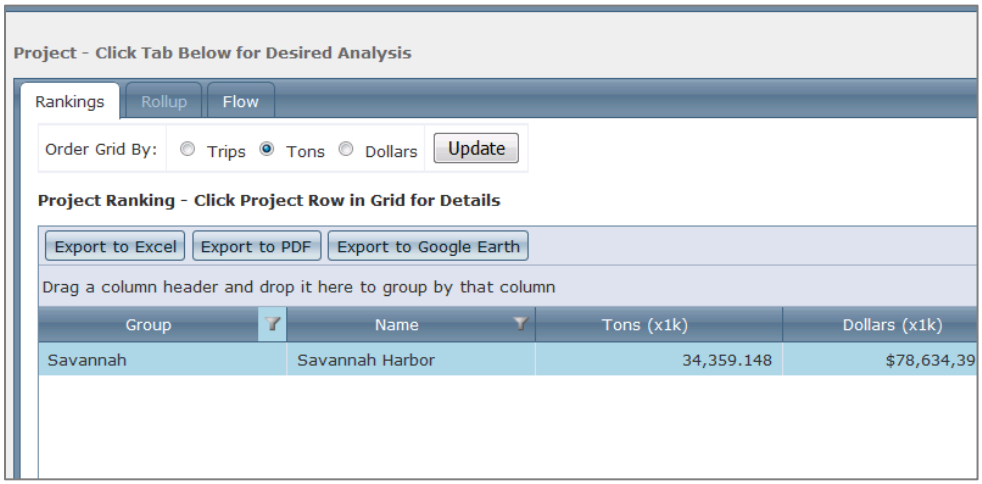
The first RESULTS screen will look like the screenshot below, it's not blank, don't worry!

Step 6. Click on the RANKING tab.

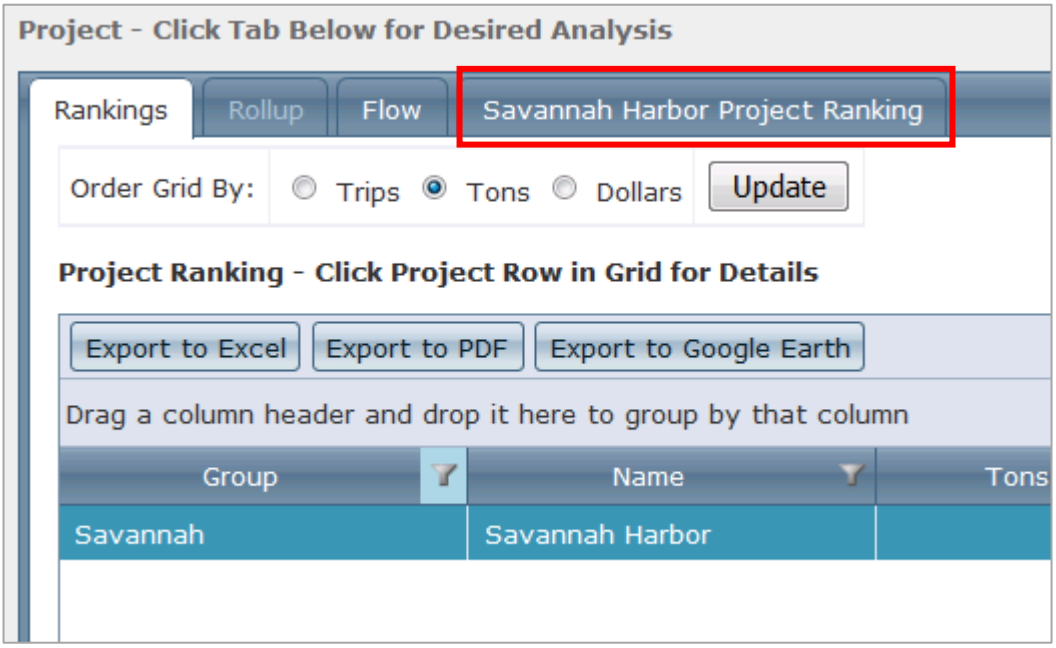
If you only selected one project there will only be one row in the **Rankings** tab results table. That's ok!



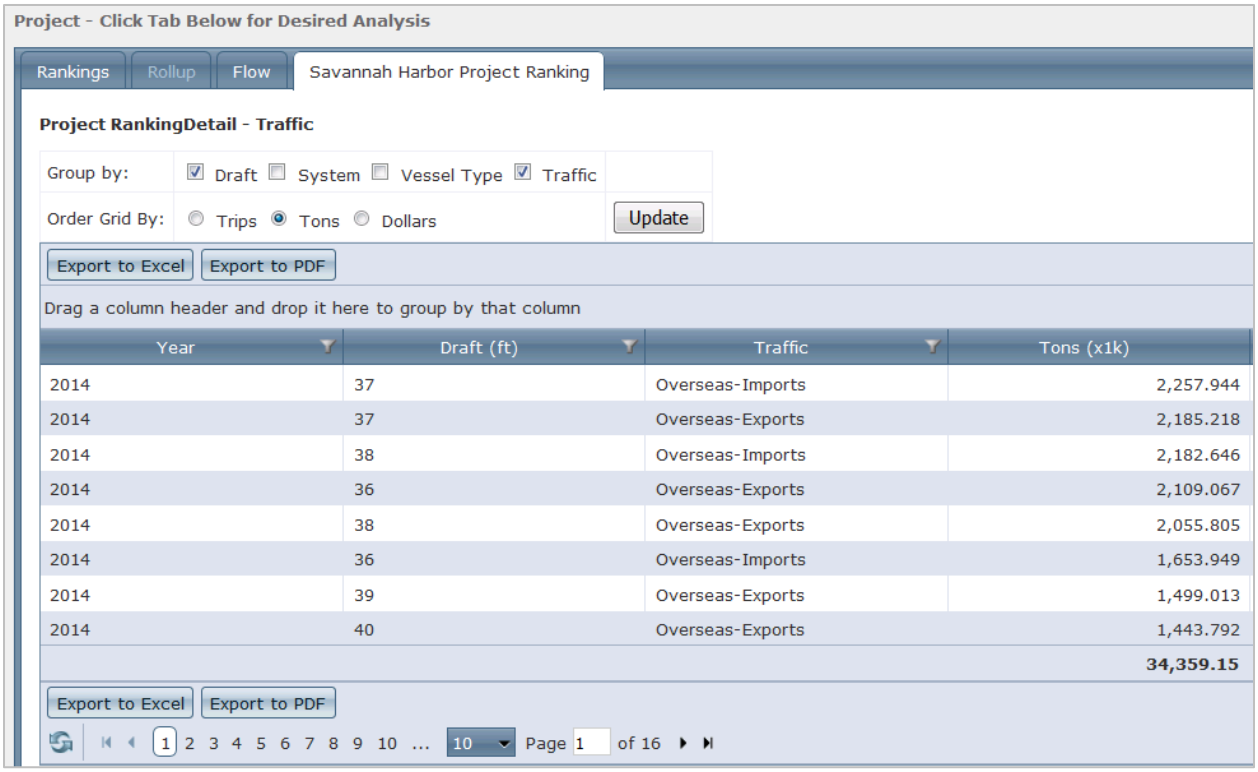
Step 7. Click on the Savannah row.....



.....and then a new tab will appear in the back.

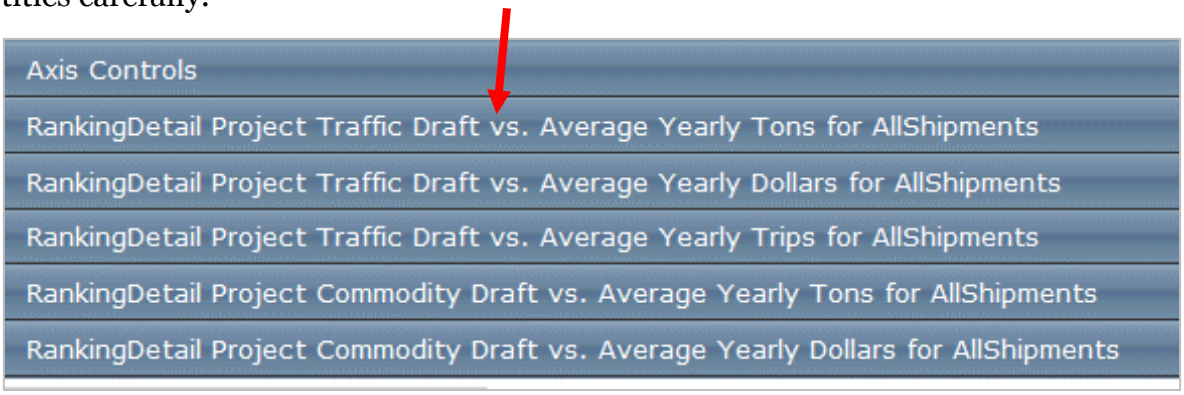


Step 8. Click on the new tab (Savannah Harbor Project Ranking) to display detailed results.

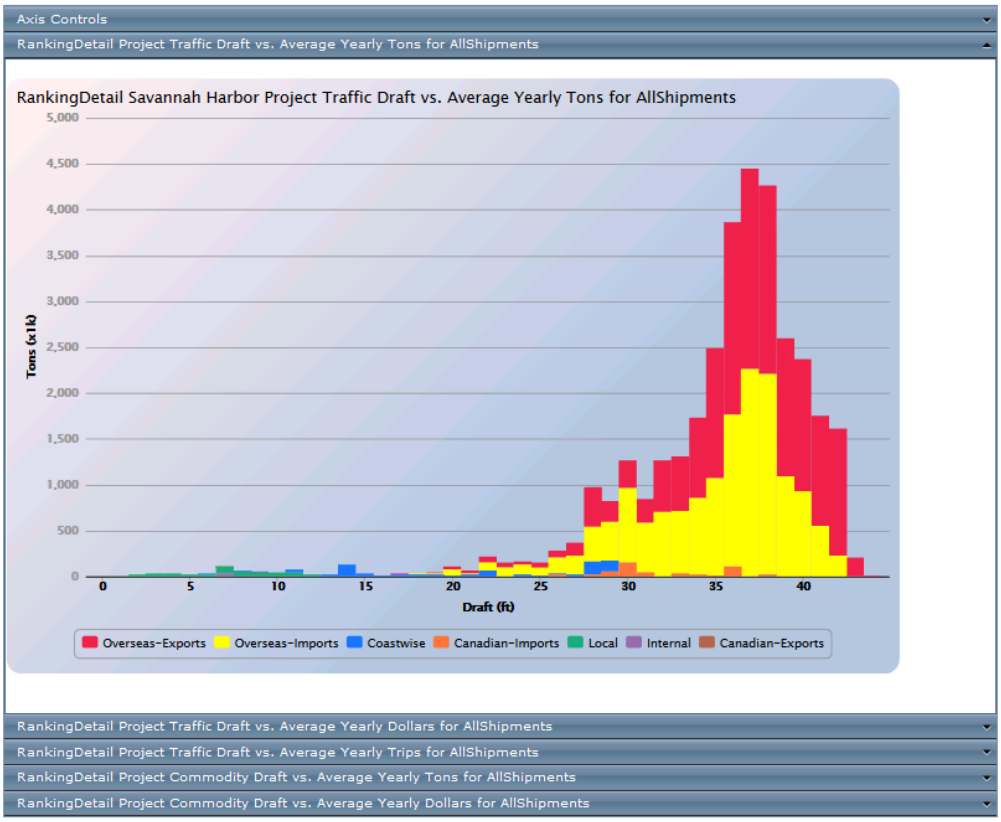


Step 9. Scroll down to see the available graphs.

There will be multiple GRAPHS, click on one of the lines to view the graph. Note that the graphs show different combinations of data, please read axis titles carefully.



You've got your graphs!

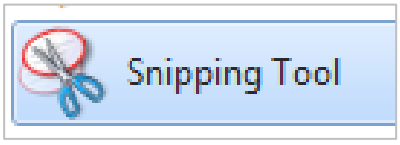


There is no export function for the graph files (at present).

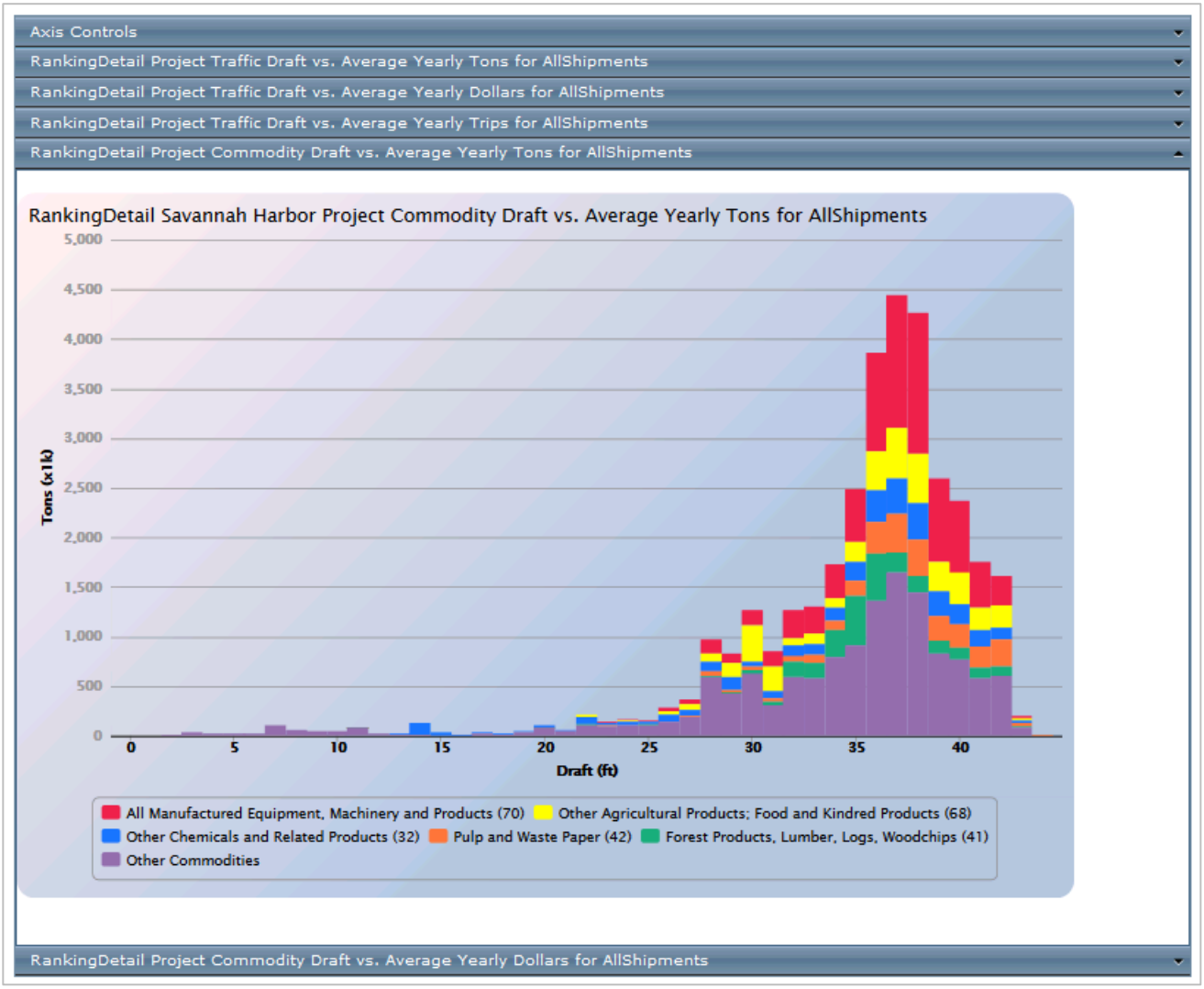
Users can take screenshots and copy/ paste into a word doc or paint program. Depending on your screen size you may be able to hit **Ctrl** and + keys to zoom in on your web browser to make the graph larger before you take a screenshot

Step 10. To take a screenshot of the graphs, hold down the keys **Fn** and **Prnt Scrn.** (Depending on your computer this key combination might be **Ctrl** and **Prnt Scrn,** or **Windows icon** button and **PrtScrn/SysRq**).

Some users may have a program called Snipping Tool installed. This program can be used to take screenshots by 'clipping' a part of the screen selected by the user.



Step 11. View all of the graphical results by clicking through the rows.

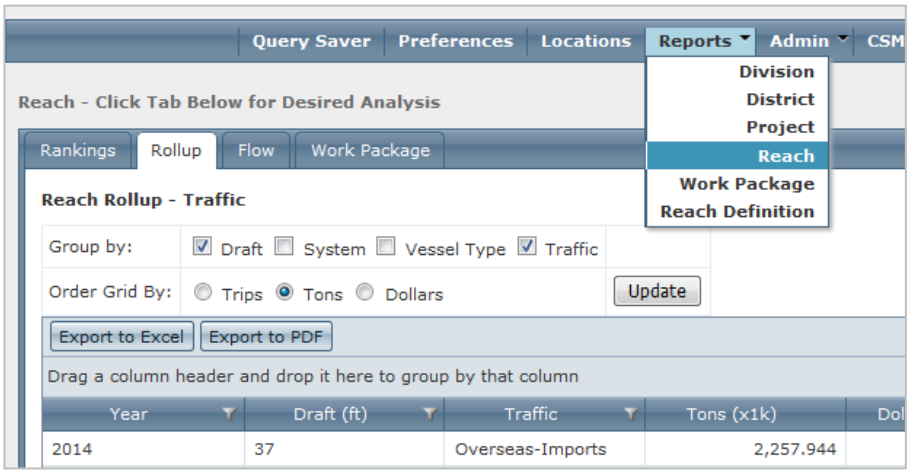


Now let's answer the other two questions listed at the start of the tutorial.

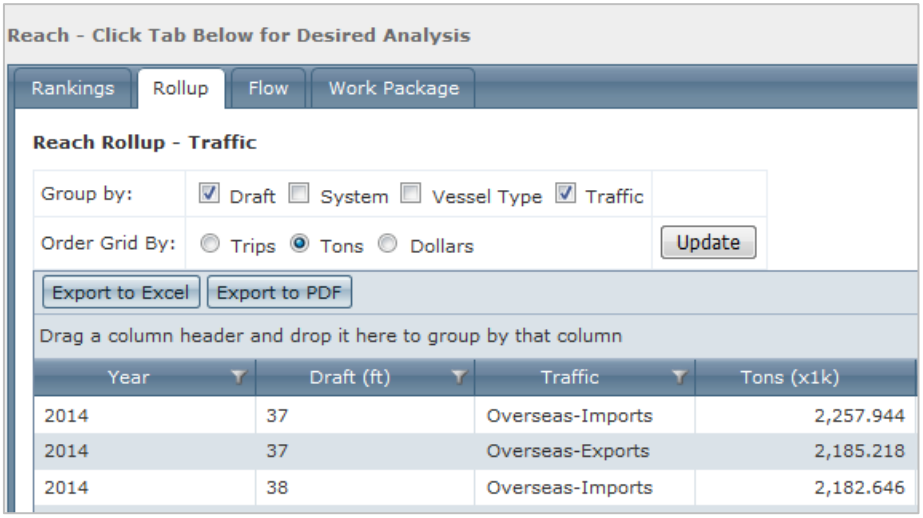
- How much tonnage transited at the deepest channel depth in the Savannah Harbor project in 2014?
- How many vessel trips were there in the Savannah Harbor project in 2014?

How much tonnage transited at the deepest channel depth in the Savannah Harbor project in 2014?

To answer this question go to the **Reports: Reach** view, **Rollup** tab.



Click on the column title **Draft (ft).** Click once to sort from shallowest to deepest draft.



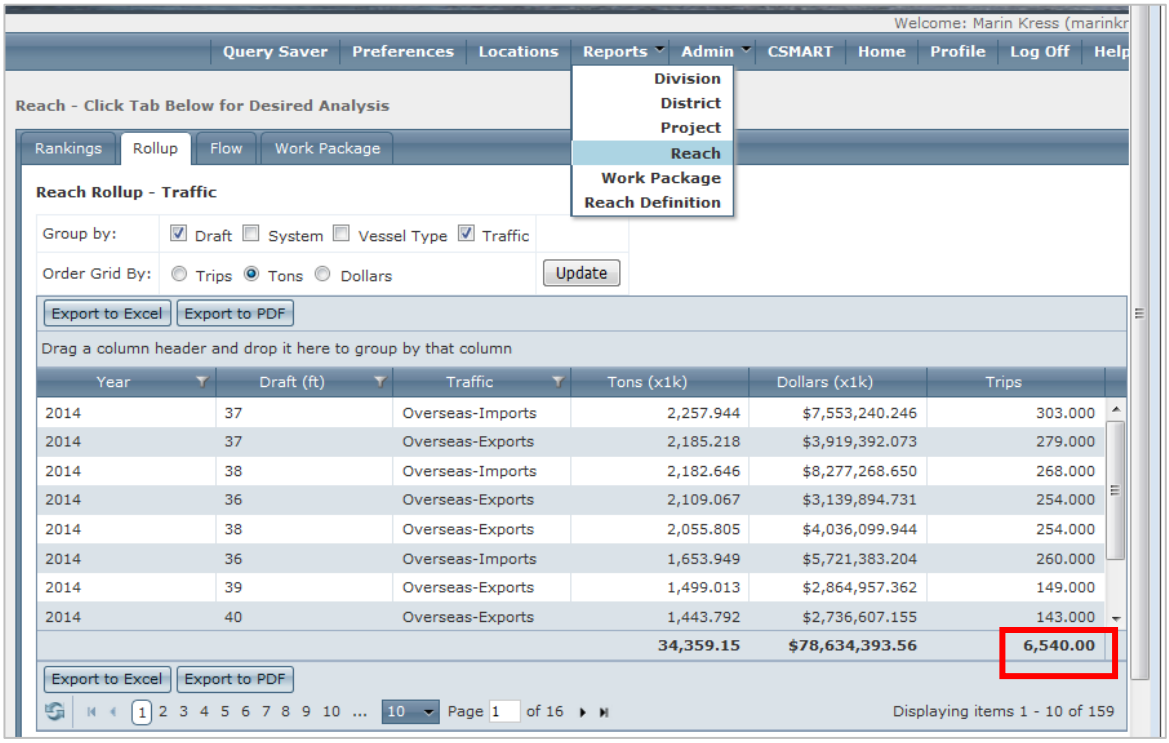
Click again to put deepest draft at the top.

Year	Draft (ft)	Traffic	Tons (x1k)
2014	44	Overseas-Exports	20.106
2014	43	Overseas-Exports	203.319
2014	43	Overseas-Imports	6.621
2014	42	Overseas-Exports	1,378.173
2014	42	Overseas-Imports	230.786
2014	42	Canadian-Imports	3.997
2014	41	Overseas-Exports	1,207.427
2014	41	Overseas-Imports	545.067
			34,359.15

We see that for this project there was only one type of traffic at 44ft (Overseas-Exports) and it carried just over 20,000 tons in 2014.

How many vessel trips were there in the Savannah Harbor project in 2014?

To answer this question go to the **Reports: Reach** view, **Rollup** tab. The rollup trip total for the selected reaches will be under the **Trips** column in a separate row.



You can see that there were over 6,500 vessel trips in the Savannah Harbor project in 2014.

Summary of results: In Savannah Harbor, based on 2014 data, tonnage transited in vessels drafting from 1 – 44ft. The greatest amount of tonnage was carried by vessels drafting approximately 36 to 38ft and consisted mostly of overseas-import/export cargo. Less than 500,000 tons utilized the 43ft and 44ft channel depths during the year.

End of tutorial.

Have more questions? Give us a call!

11 Contact Information

CPT webinars and tutorials can easily be arranged for registered users.

The Navigation Systems research group is available to produce custom products ranging from fact sheets to historical reports using data from CPT as well as other ERDC products including the AIS Analysis Package (AISAP). We will work with you to develop a product that meets your navigation data needs.

Questions concerning CPT should be directed to Dr. Ned Mitchell
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Office phone: 601-634-2022

Questions about the Corps' Shoaling Analysis Tool should be directed to
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Lauren.M.Dunkin@usace.army.mil

For suggestions or questions about this document contact Dr. Marin Kress
Marin.M.Kress@usace.army.mil
Office phone: 202-761-7422

12 Appendix – Practice Exercises