Channel Portfolio Tool

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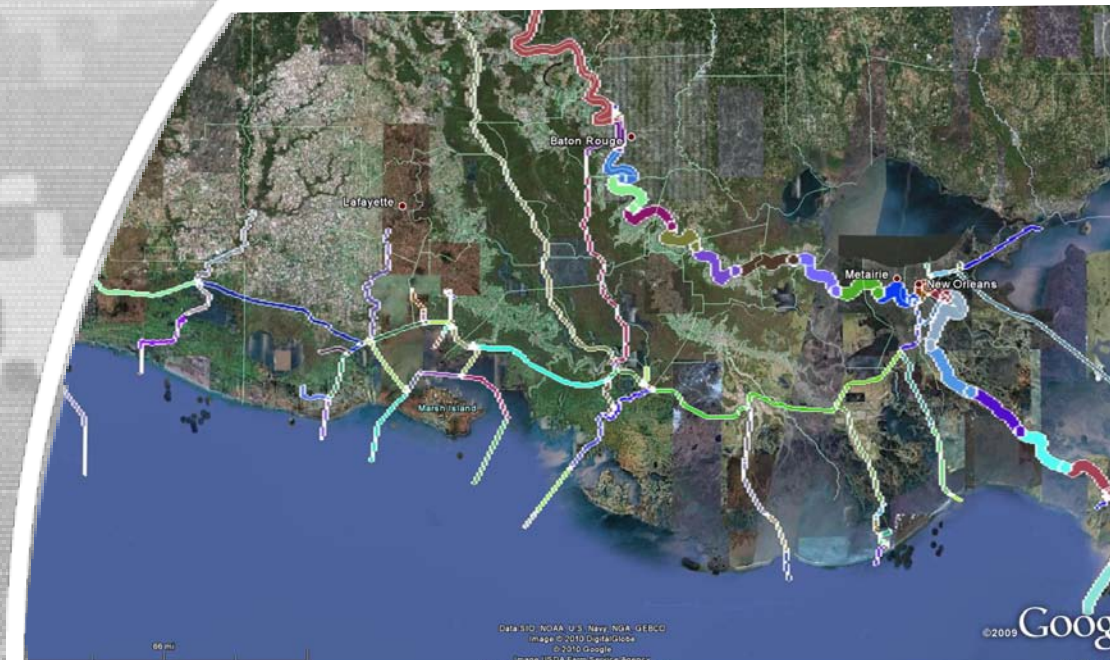

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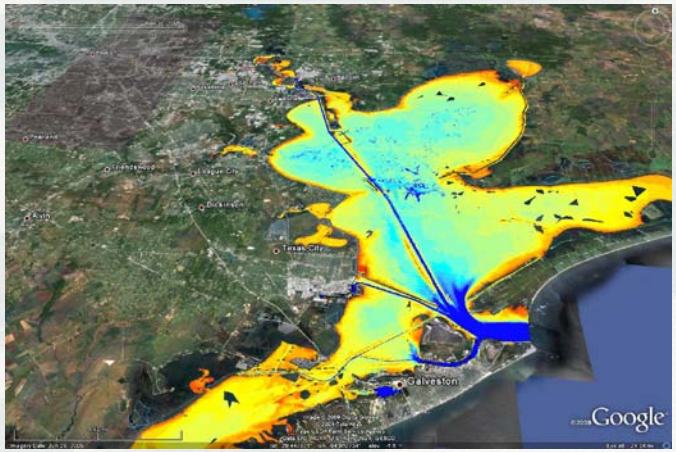
Background

- Need within USACE for more objective, consistent justification for O&M dredging.
- Corps invests on avg. $770M each year in maintenance dredging of national waterway infrastructure.
- Time and fiscal constraints prevent rigorous, detailed economic justification from being conducted for most O&M dredging work packages.



Background

- Resulting decision-making process is *ad hoc* and difficult to defend.
- OMB has indicated that improved O&M justification is a precondition for increased outlays from the Harbor Maintenance Trust Fund (HMTF).
- Metrics are needed to assess project utilization and present condition relative to authorized dimensions.

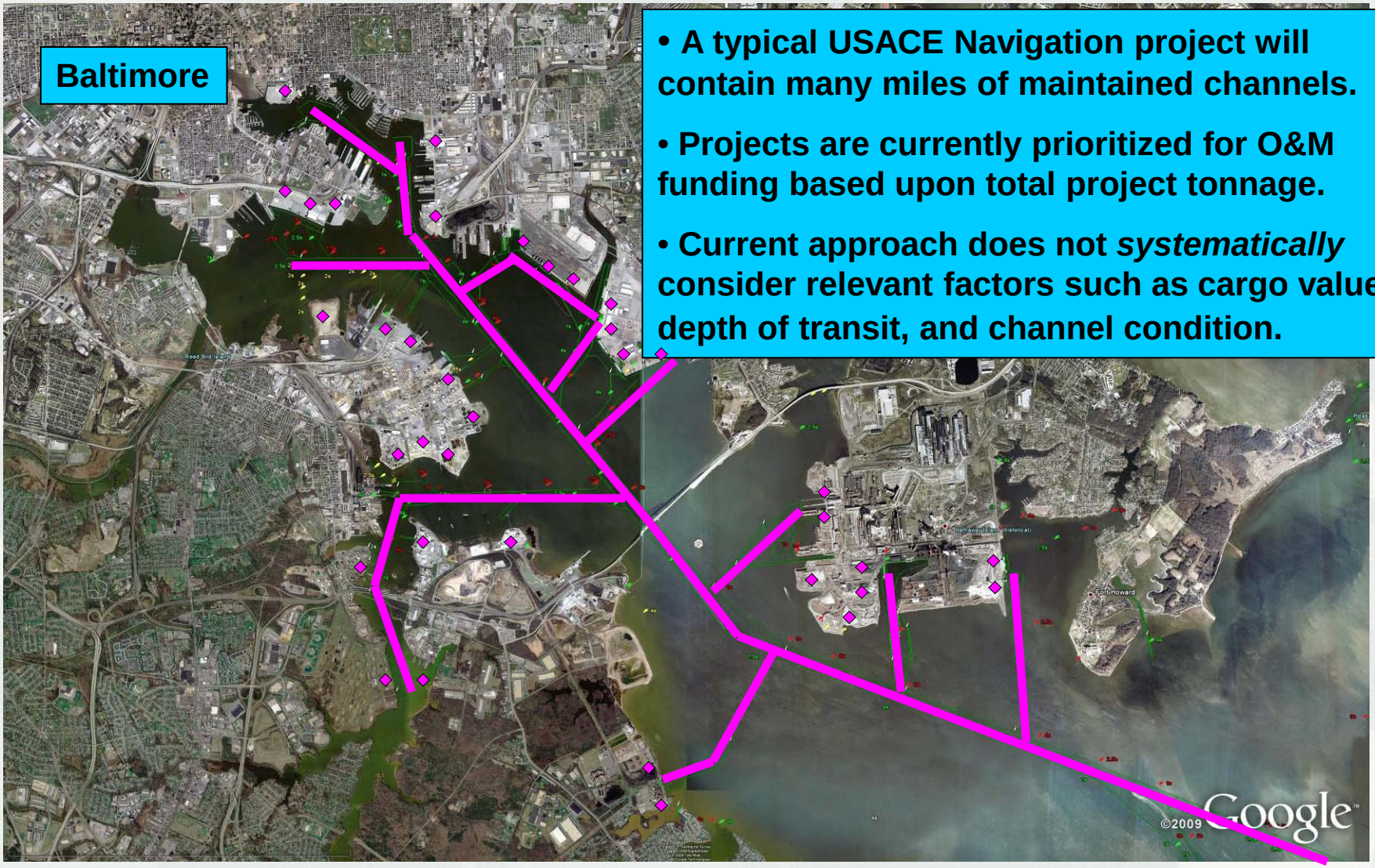
Channel Portfolio Tool (CPT)

- CPT uses the dock-level, Corps-use-only tonnage database from IWR's Waterborne Commerce Statistics Center (WCSC) to analyze the extent to which commercial traffic utilizes maintained channel depths.

- Present and anticipated channel limiting depths are compared directly to the distribution of commercial cargo across the maintained depths.

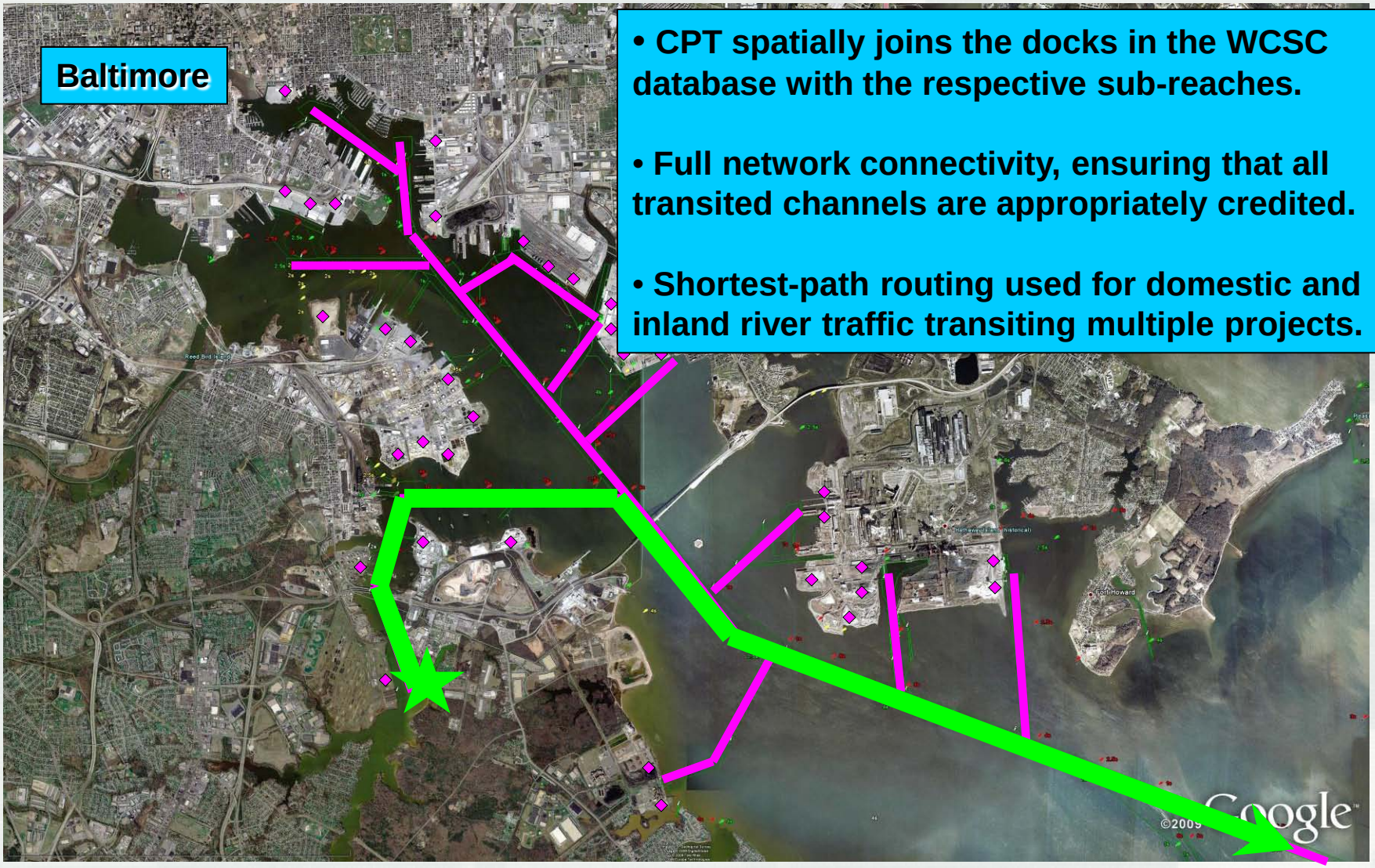
- Navigation channels are then ranked in terms of tons and $-value of cargo transiting at depths that experience shoaling.

Channel Portfolio Tool (CPT)



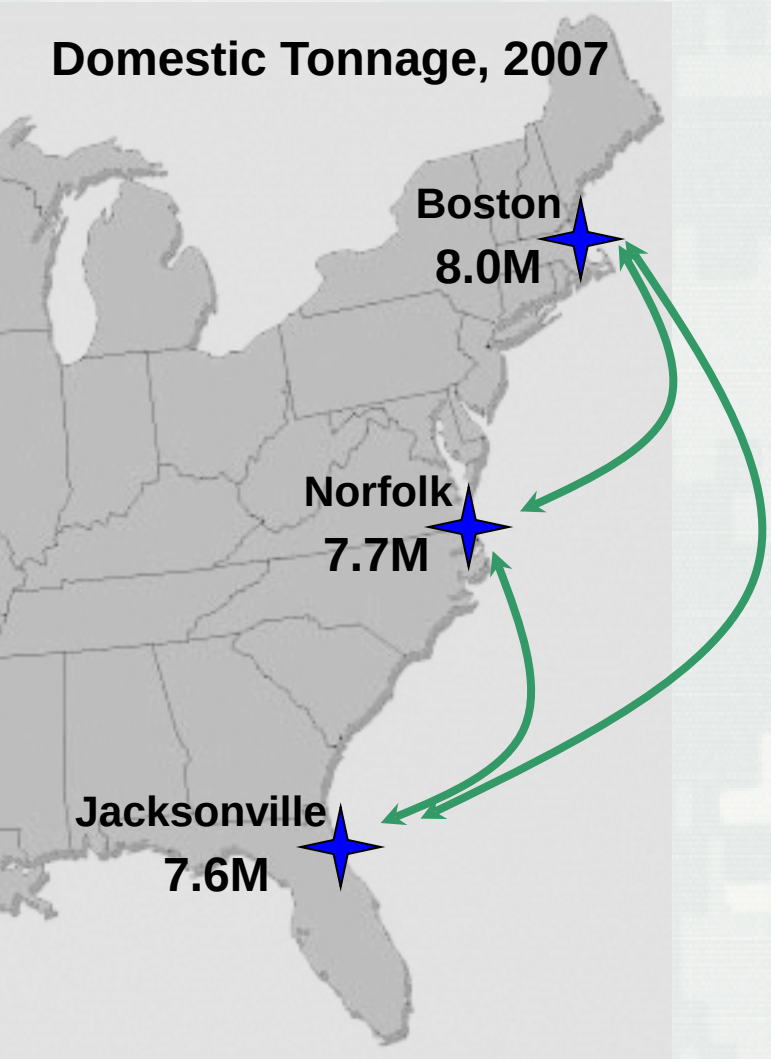
- **A typical USACE Navigation project will contain many miles of maintained channels.**
- **Projects are currently prioritized for O&M funding based upon total project tonnage.**
- **Current approach does not *systematically* consider relevant factors such as cargo value, depth of transit, and channel condition.**

Channel Portfolio Tool (CPT)



- **CPT spatially joins the docks in the WCSC database with the respective sub-reaches.**
- **Full network connectivity, ensuring that all transited channels are appropriately credited.**
- **Shortest-path routing used for domestic and inland river traffic transiting multiple projects.**

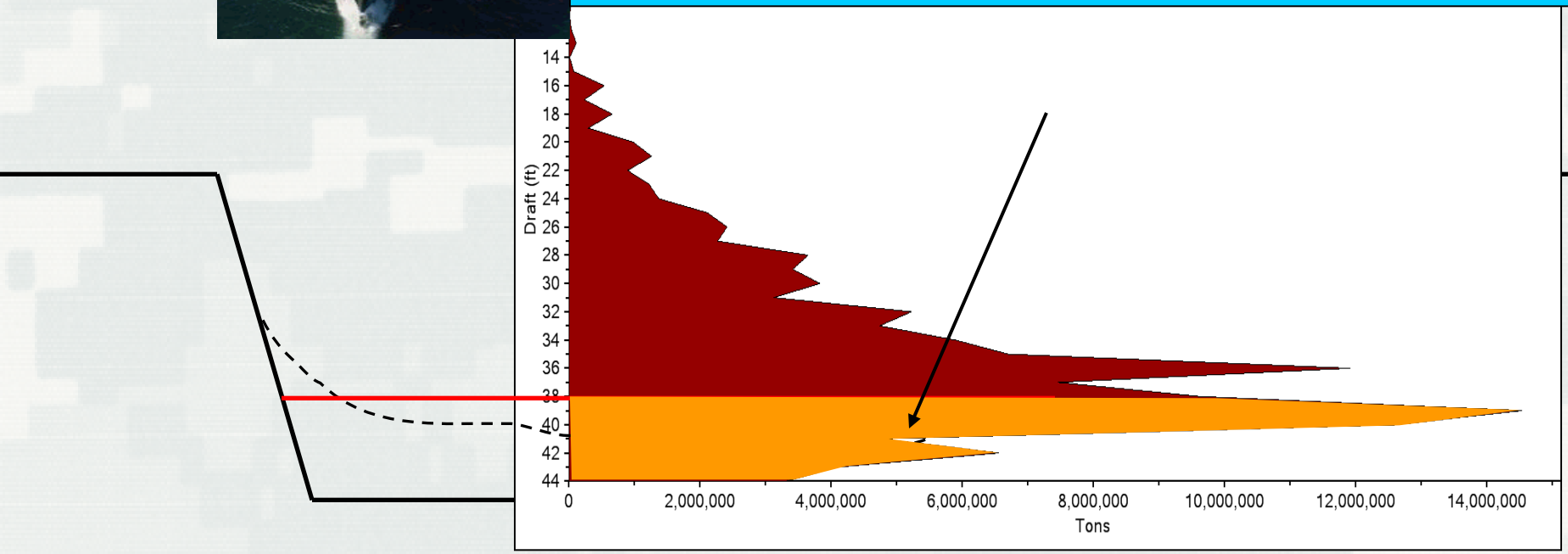
Channel Portfolio Tool (CPT)



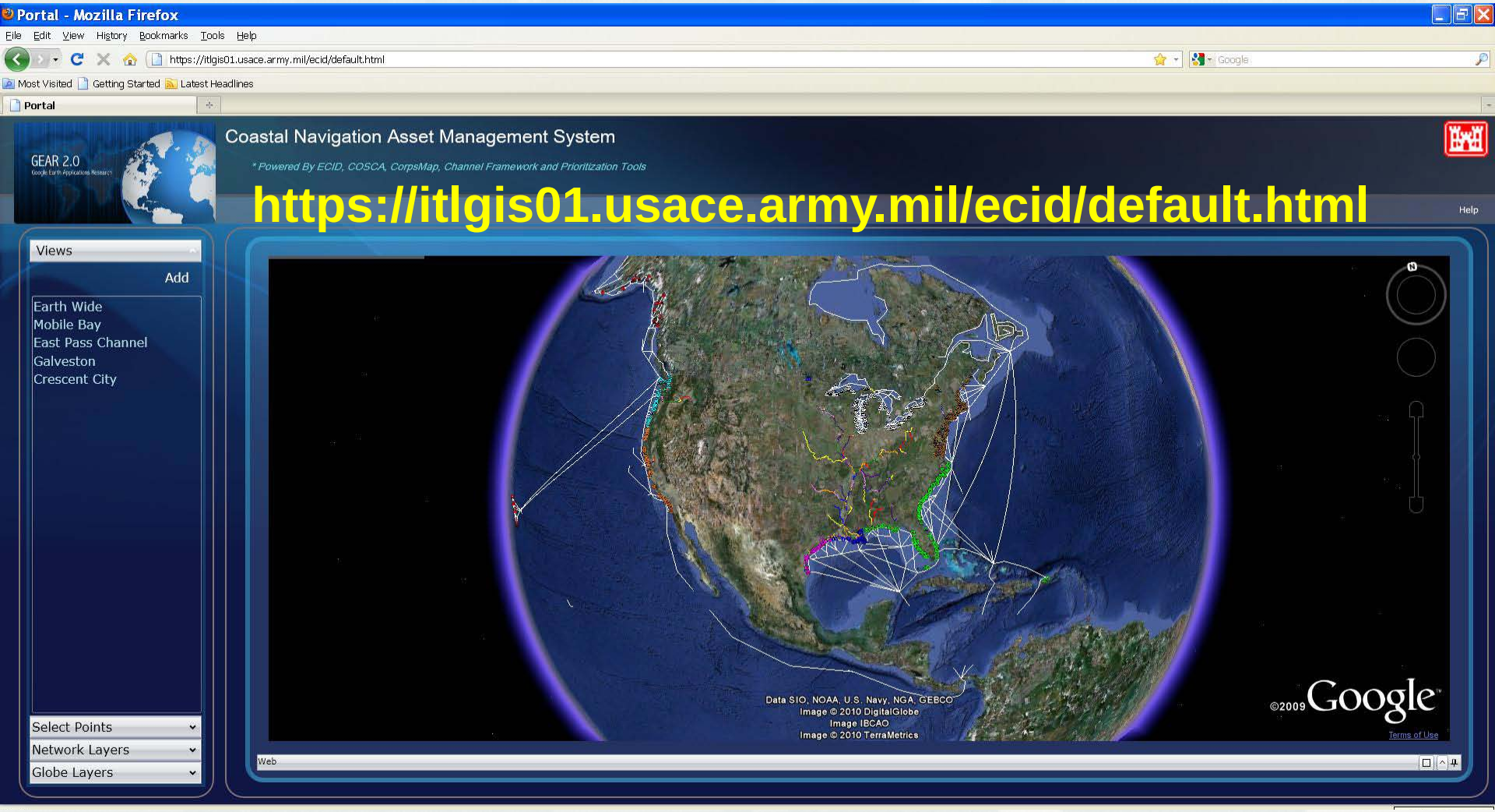
- Calculating total system tonnage not always straightforward.
- Many waterborne commerce movements will transit multiple USACE projects.
- To avoid double counting, this must be taken into account when “rolling-up” project, District, and Division totals.

Channel Portfolio Tool (CPT)

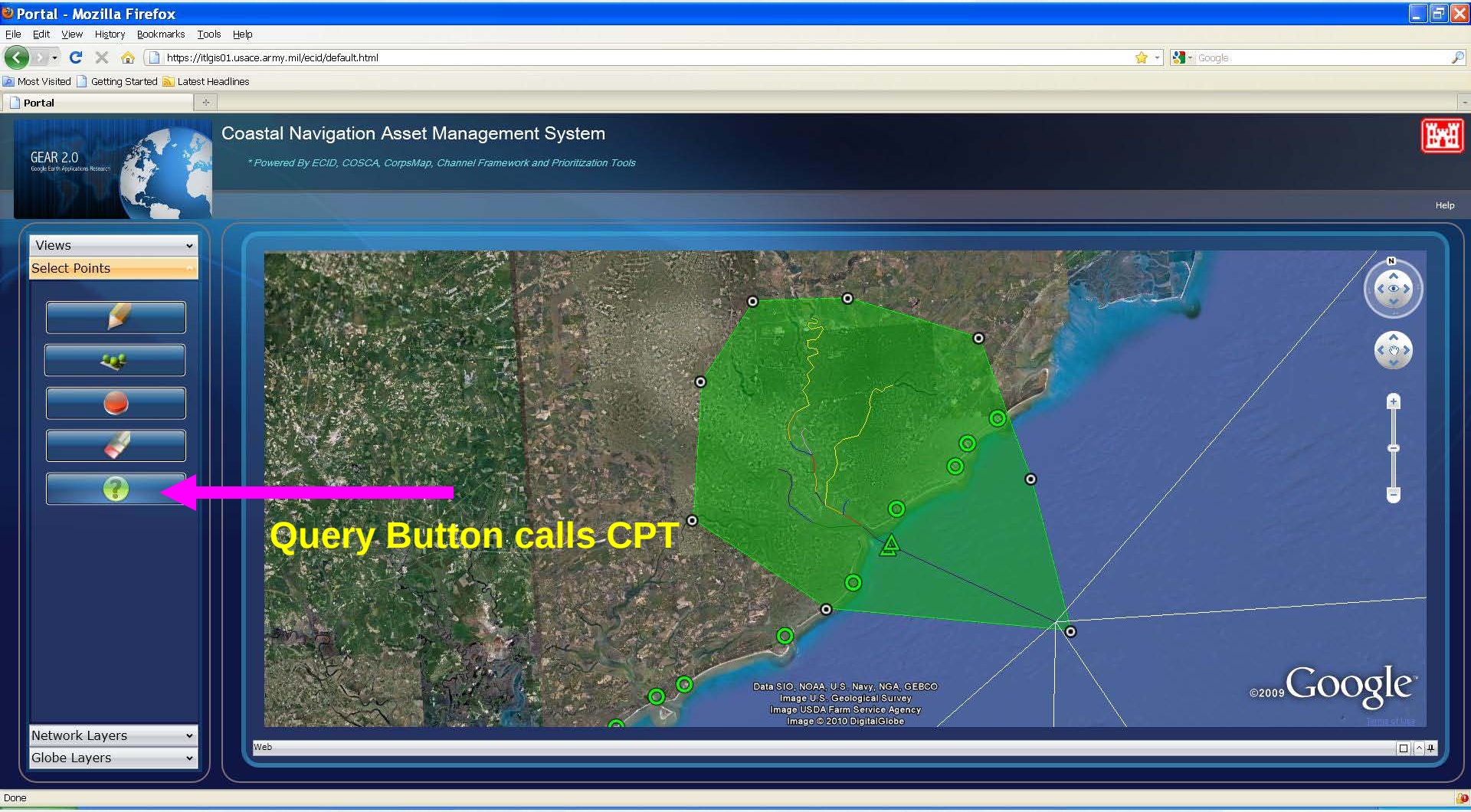
- **With all shipments routed through the network of channels, usage profiles showing the distribution of tonnage across the range of maintained depths can be generated for any given segment.**
- **CPT compares these tonnage-draft profiles to the segment limiting depths resulting from present shoaling conditions.**



CPT Access via ITL GEAR Portal



Reach Selection via ITL GEAR Portal



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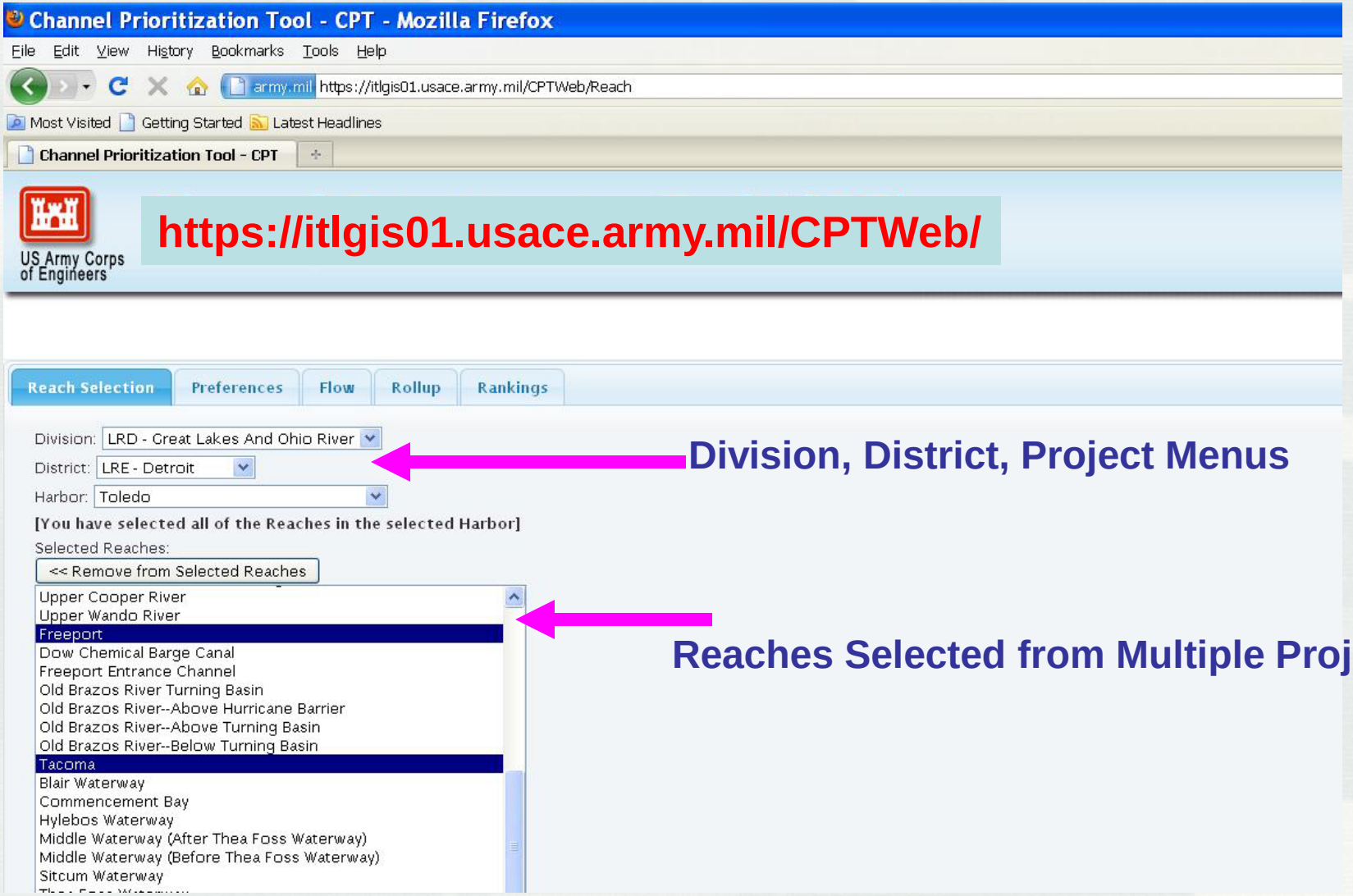

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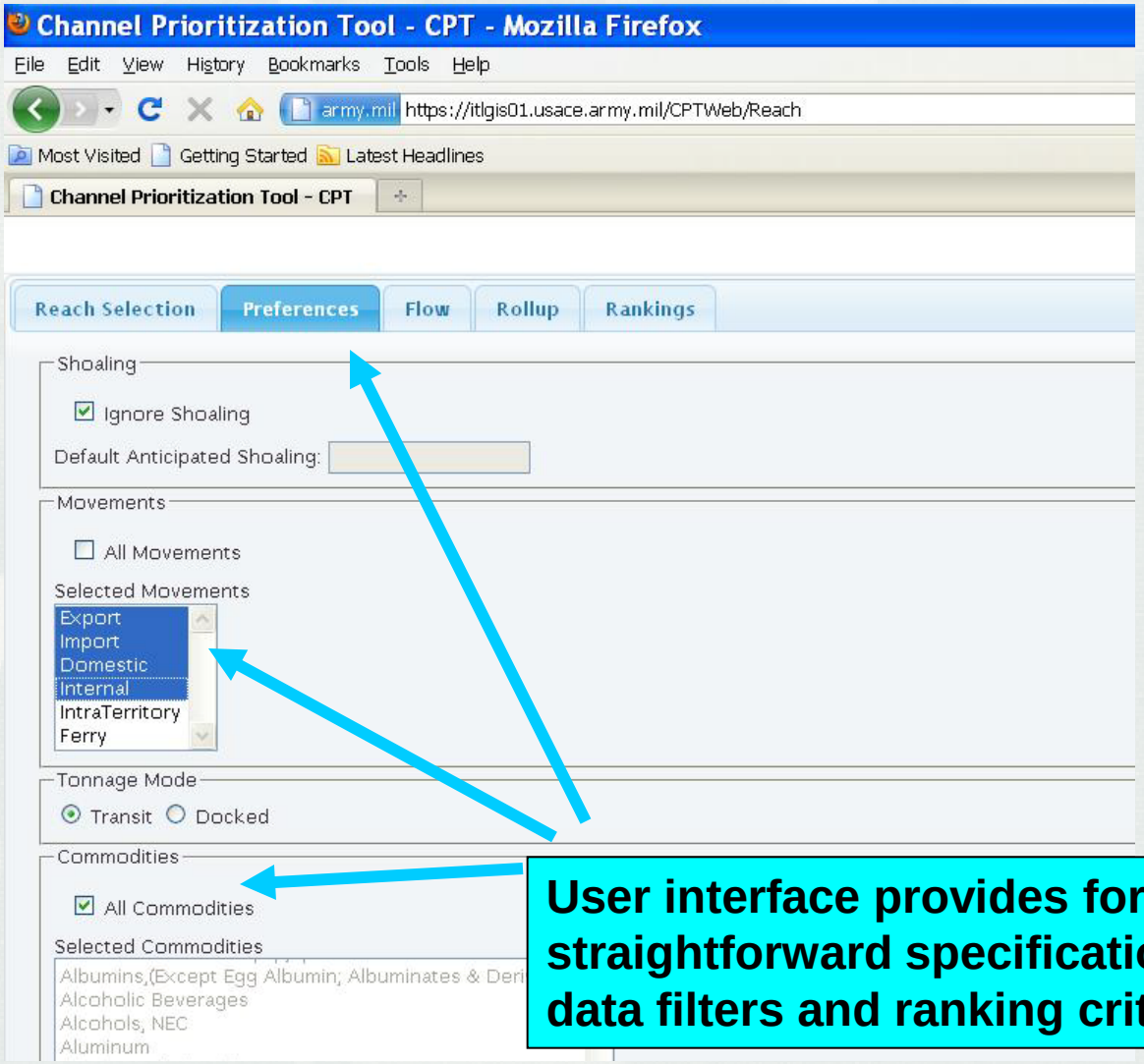
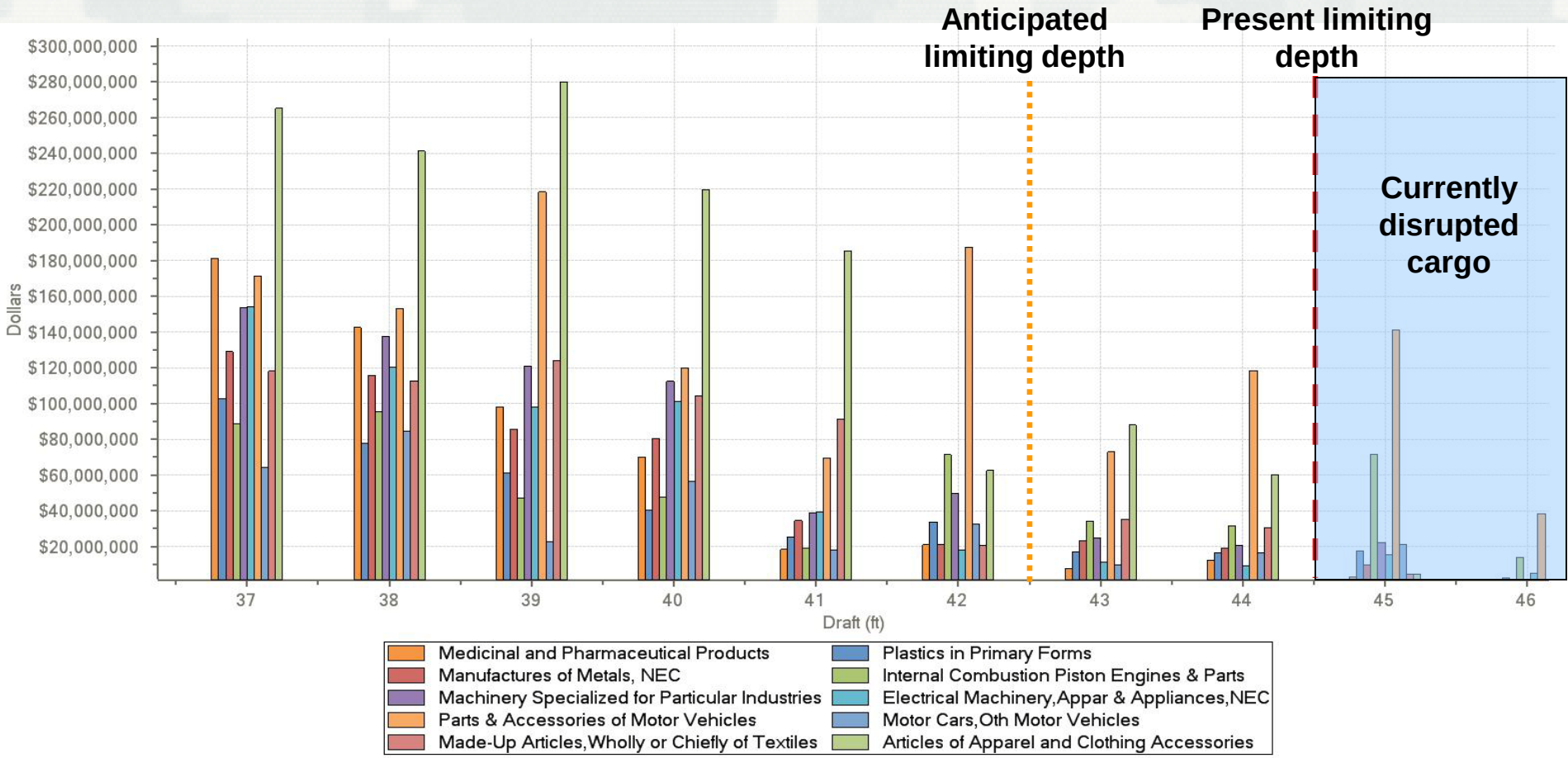


User interface provides for clear, straightforward specification of data filters and ranking criteria.

Channel Portfolio Tool (CPT)

- **Key point: historical tonnage records are combined with anticipated shoaling rates to determine the relative importance of dredging work packages.**



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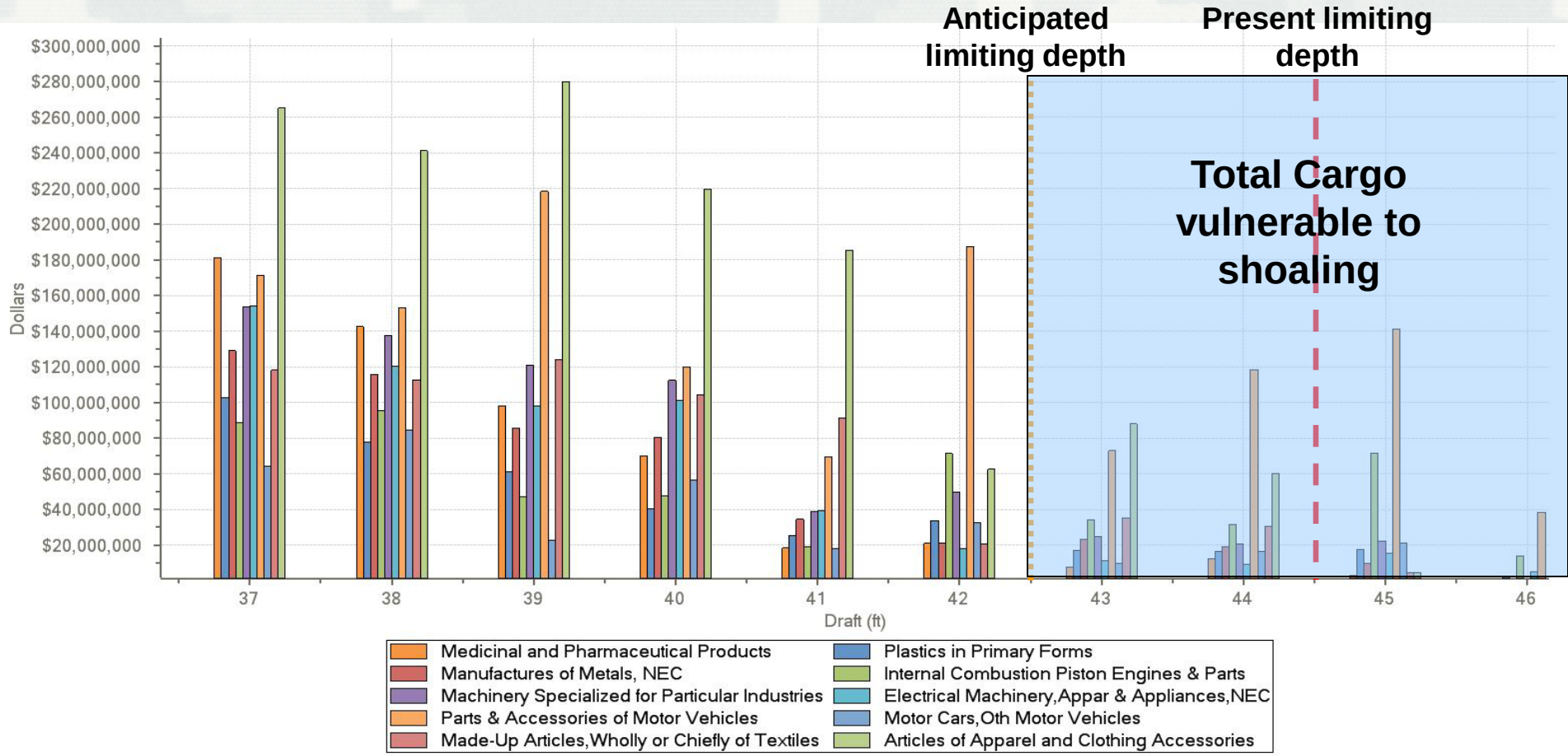

Channel Portfolio Tool (CPT)

US Army Corps of Engineers

Channel Portfolio Tool (CPT)

Sub-reaches from different projects can be directly compared, and a prioritized ranking of the entire portfolio of projects generated.

Reach Selection | Preferences | Flow | Rollup

Ranked Reaches

Harbor	Name	Tons	Dollars
Duluth-Superior	Howards Bay	12,920,051	$708,679,347
Duluth-Superior	Superior Harbor	4,699,717	$211,177,037
Calcasieu	Industrial Canal	2,874,351	$905,685,363
Corpus Christi	Corpus Christi Ship Channel C	2,526,996	$1,404,795,512
Boston	Mystic River A	2,198,957	$601,378,943
Boston	Mystic River B	1,986,495	$597,785,069
Calcasieu	Calcasieu Middle Reach (Mile 17 to 27)	1,696,993	$288,532,296
Calcasieu	Lower Calcasieu River (Mile 12 to Mile 17)	926,100	$728,151,816
Calcasieu	Lower Calcasieu River (Mile 5 to Mile 12)	926,100	$728,151,816
Boston	Boston Inner Harbor above North Boston	856,828	$73,808,896
Boston	Boston Inner Harbor Below North Boston	856,828	$73,808,896
Seattle	Elliott Bay	598,124	$1,113,204,997

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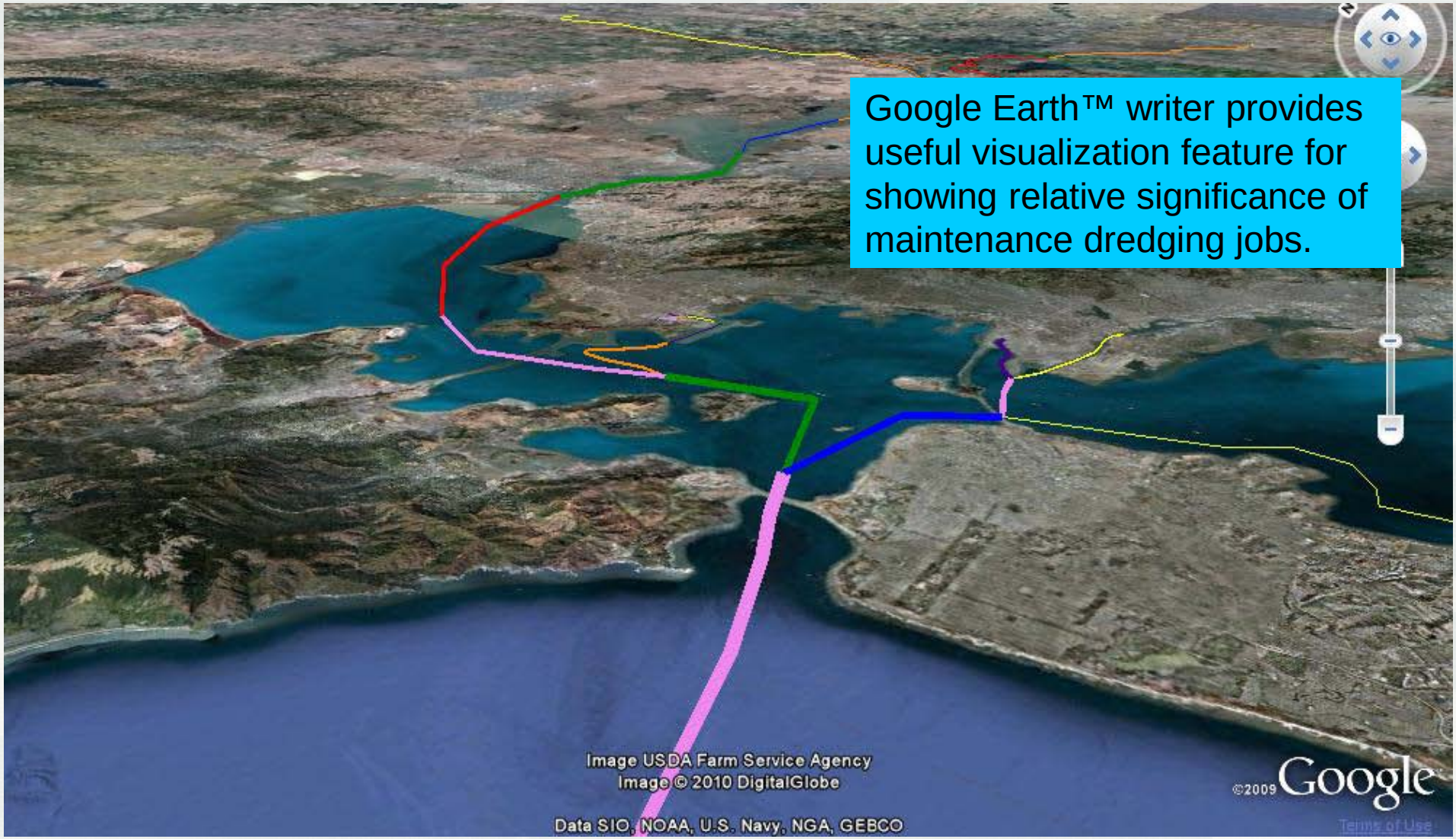

Google Earth™ writer provides useful visualization feature for showing relative significance of maintenance dredging jobs.

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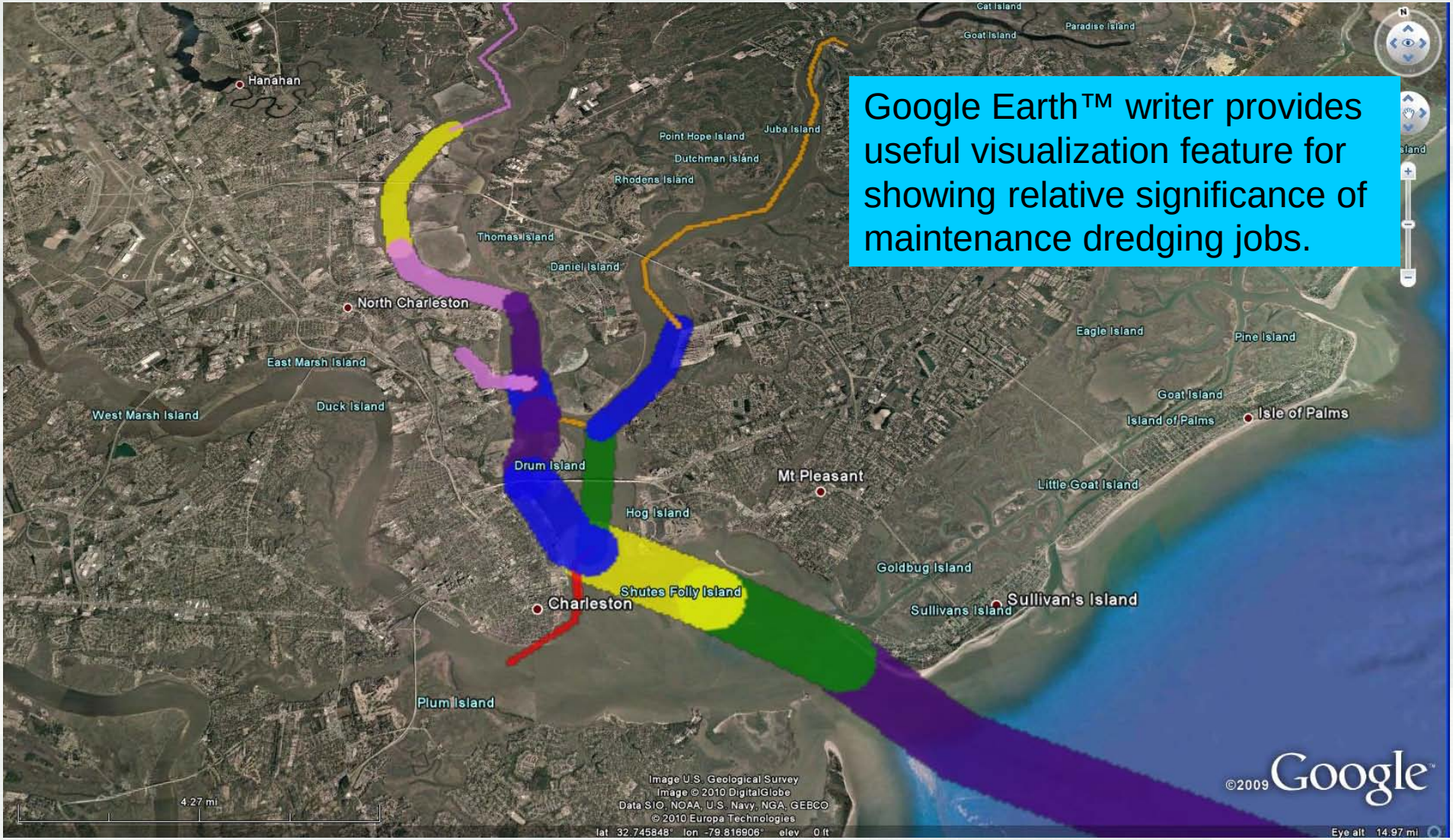

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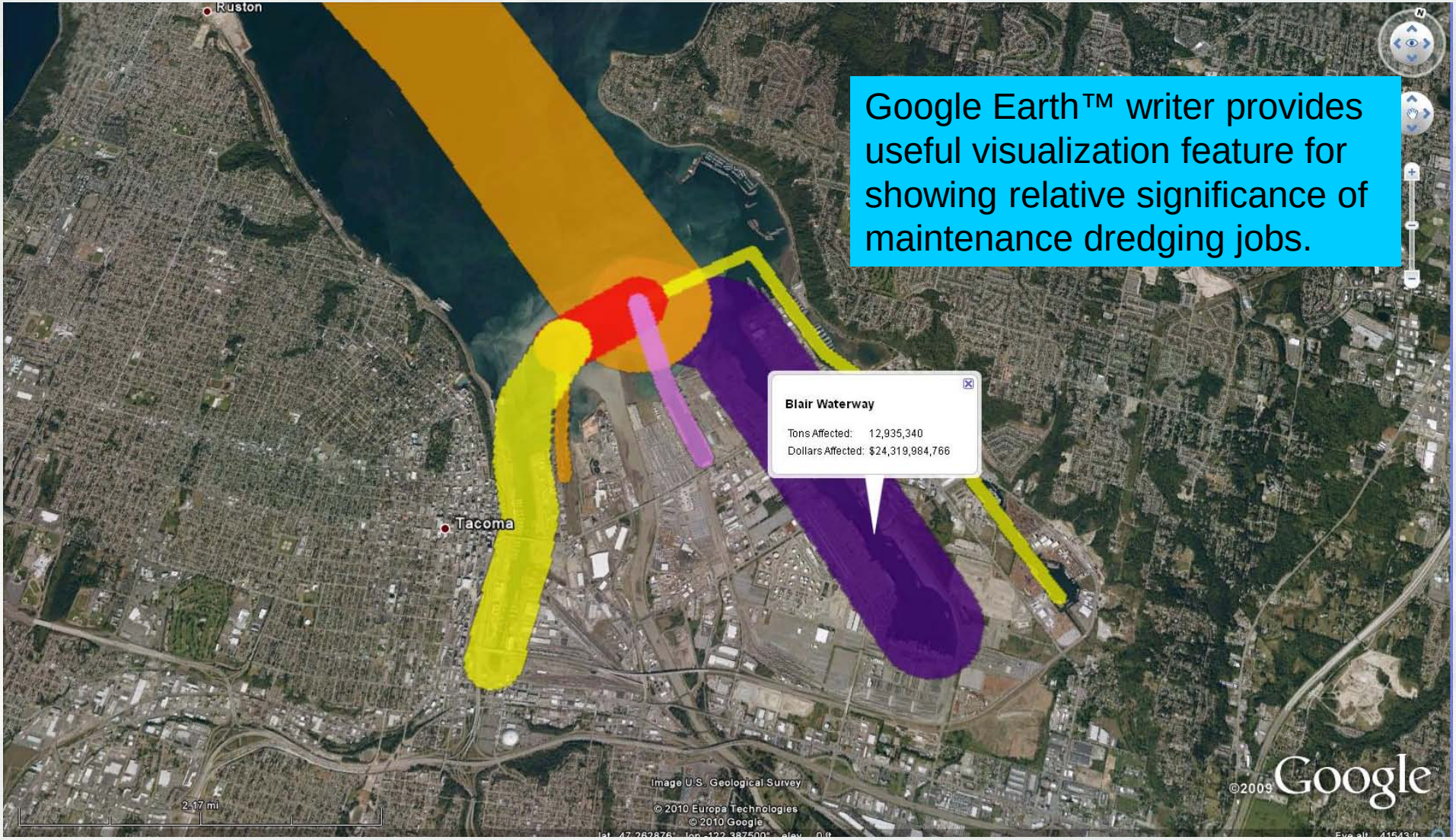

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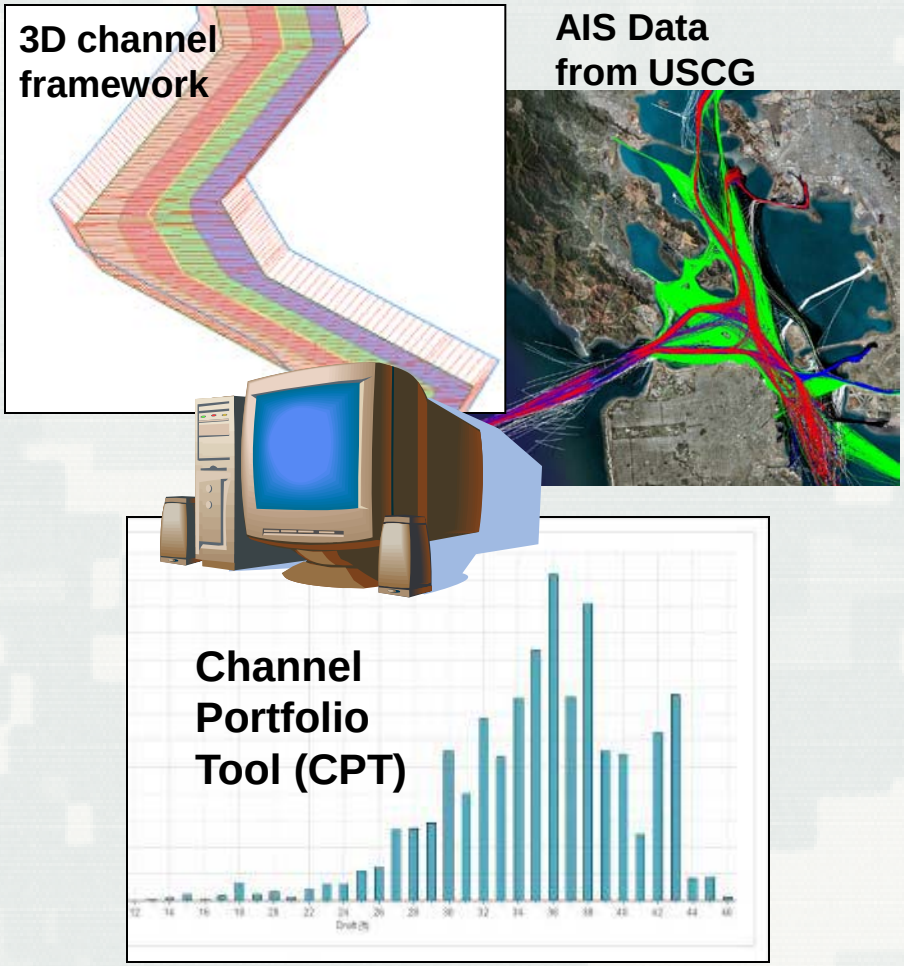
Channel Portfolio Tool (CPT)

Next steps:

- **Web-accessible suite of software tools, combining**
  - **Channel Portfolio Tool (CPT)**
  - **3D channel framework and automated survey analysis**
  - **AIS Data from US Coast Guard**
  - **CIRP Shoaling Toolbox**



Goal:

- **Portfolio-wide performance-based budgeting framework that includes depth-utilization and shoaling vulnerability.**

Channel Portfolio Tool (CPT)

ITL Navigation Portal:
https://itlgis01.usace.army.mil/ecid/default.html

CPT: https://itlgis01.usace.army.mil/CPTWeb/

Questions?

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