

Portfolio Management with the Channel Prioritization Tool



Ashley Frey

Research Civil Engineer

Kenneth Ned Mitchell, PhD

Research Civil Engineer

Coastal and Hydraulics Laboratory

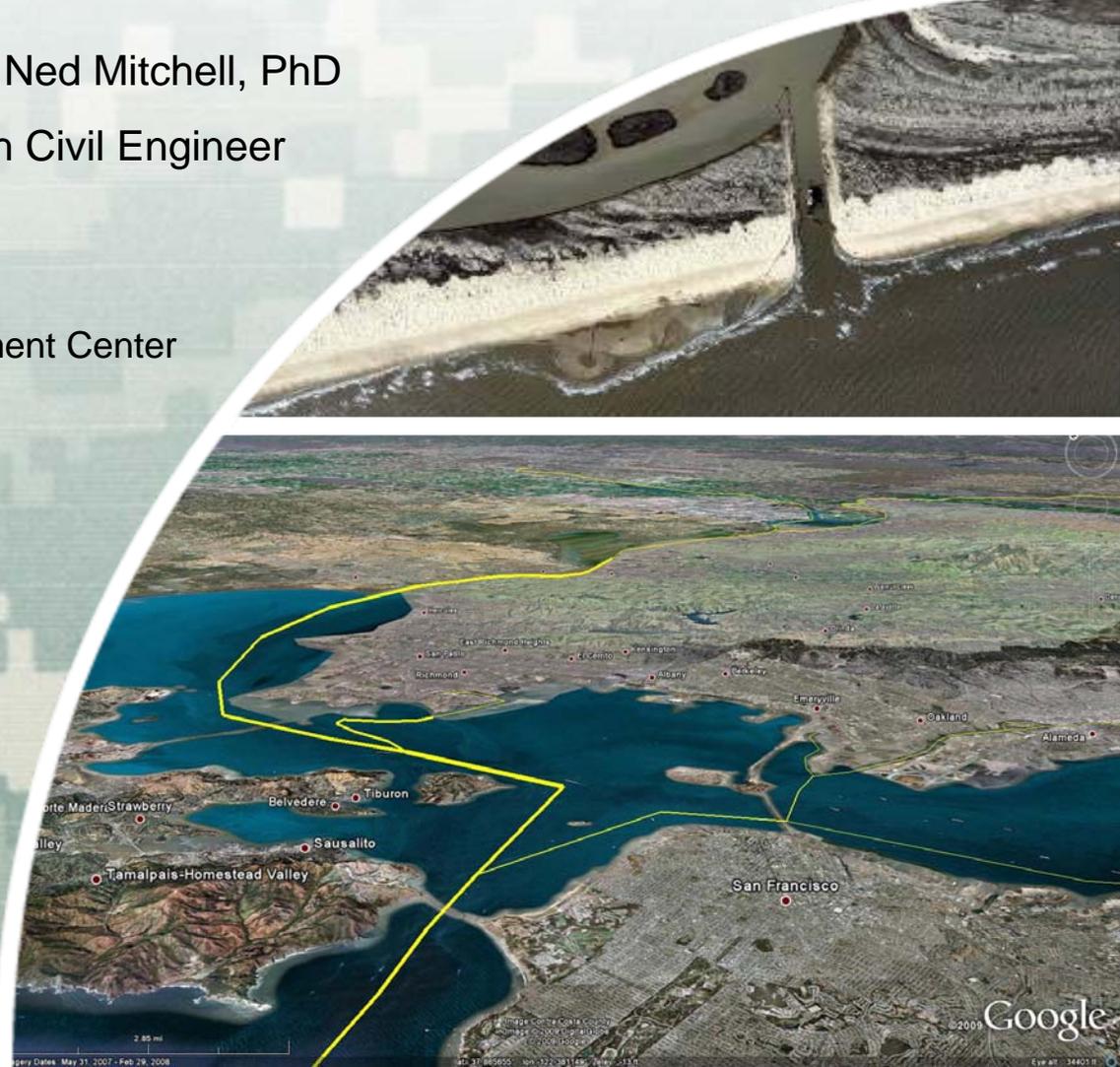
U. S. Army Engineer Research and Development Center

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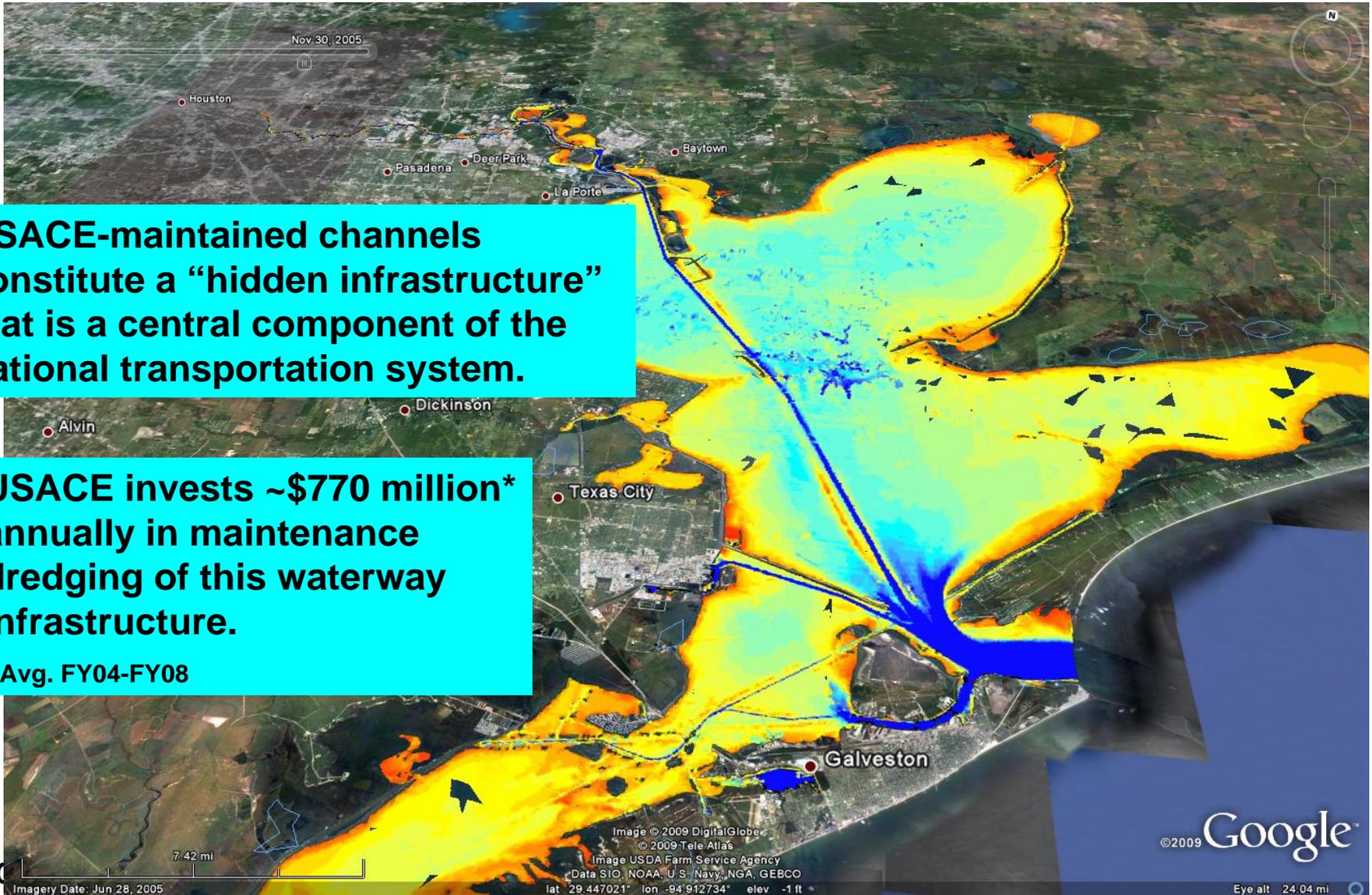


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Channel Prioritization Tool (CPT)



USACE-maintained channels constitute a “hidden infrastructure” that is a central component of the national transportation system.

USACE invests ~\$770 million* annually in maintenance dredging of this waterway infrastructure.

* Avg. FY04-FY08



O&M Dredge Budgeting



- Rolling budget cycle means Ops personnel are constantly planning, defending, and executing work packages.
- Time and fiscal constraints prevent detailed, rigorous economic justification for most maintenance dredging requests.
- Resulting decision-making process is *ad hoc*, subjective, and difficult to defend USACE-wide.



O&M Dredge Budgeting



- OMB has called for improved justification of annual maintenance dredging investments across the USACE portfolio as a precondition for increased HMTF outlays.
- Consistent, objective measures are needed to assess relative project importance and ensure that resources are effectively allocated across the vast inventory of navigation channels and ports.
- Considerations include project utilization by commercial shipping and condition relative to authorized dimensions.



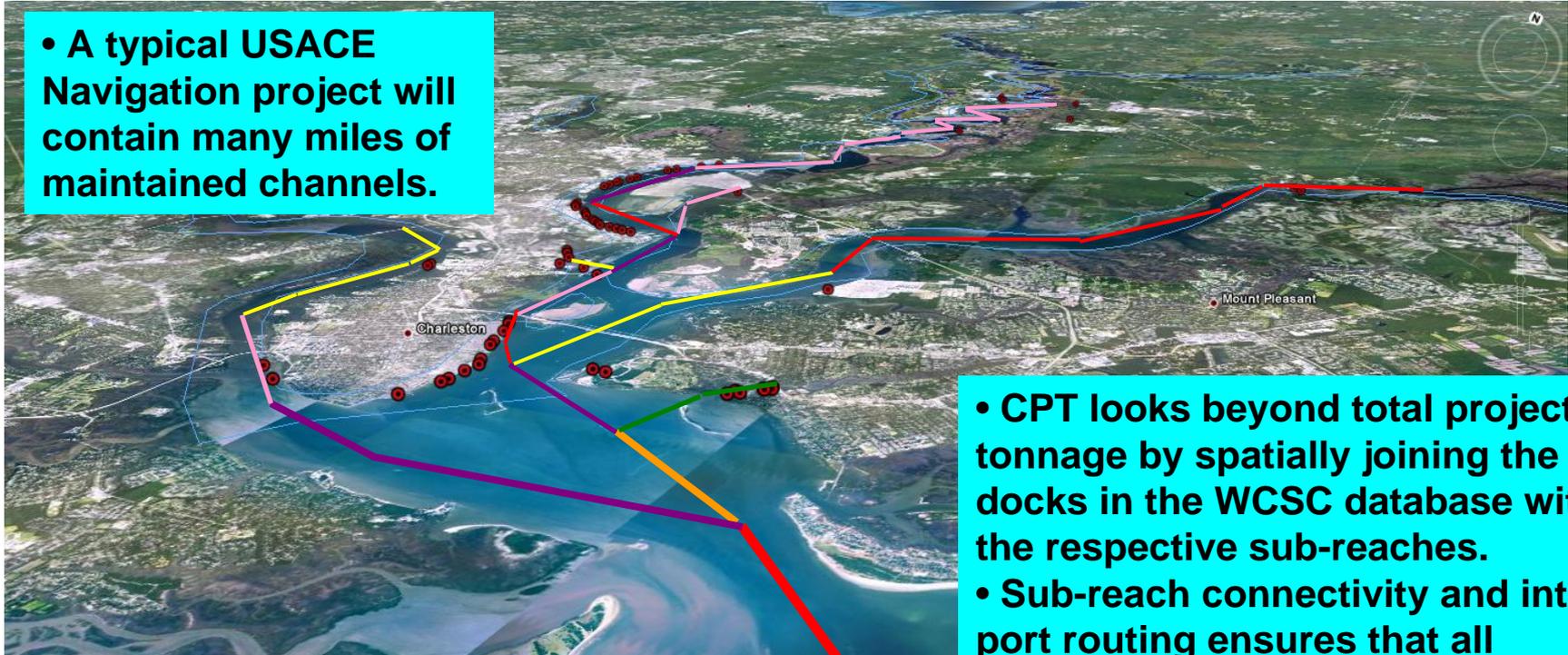
Channel Prioritization Tool (CPT)



- CPT accesses the dock-level, USACE-use-only tonnage database from IWR's Waterborne Commerce Statistics Center to analyze the extent to which commercial traffic utilizes maintained channel depths.
- Current 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 Prioritization Tool (CPT)

- A typical USACE Navigation project will contain many miles of maintained channels.



- CPT looks beyond total project tonnage by spatially joining the docks in the WCSC database with the respective sub-reaches.
- Sub-reach connectivity and intra-port routing ensures that all transited channels are included.

- Projects prioritized for O&M funding based upon total project tonnage.

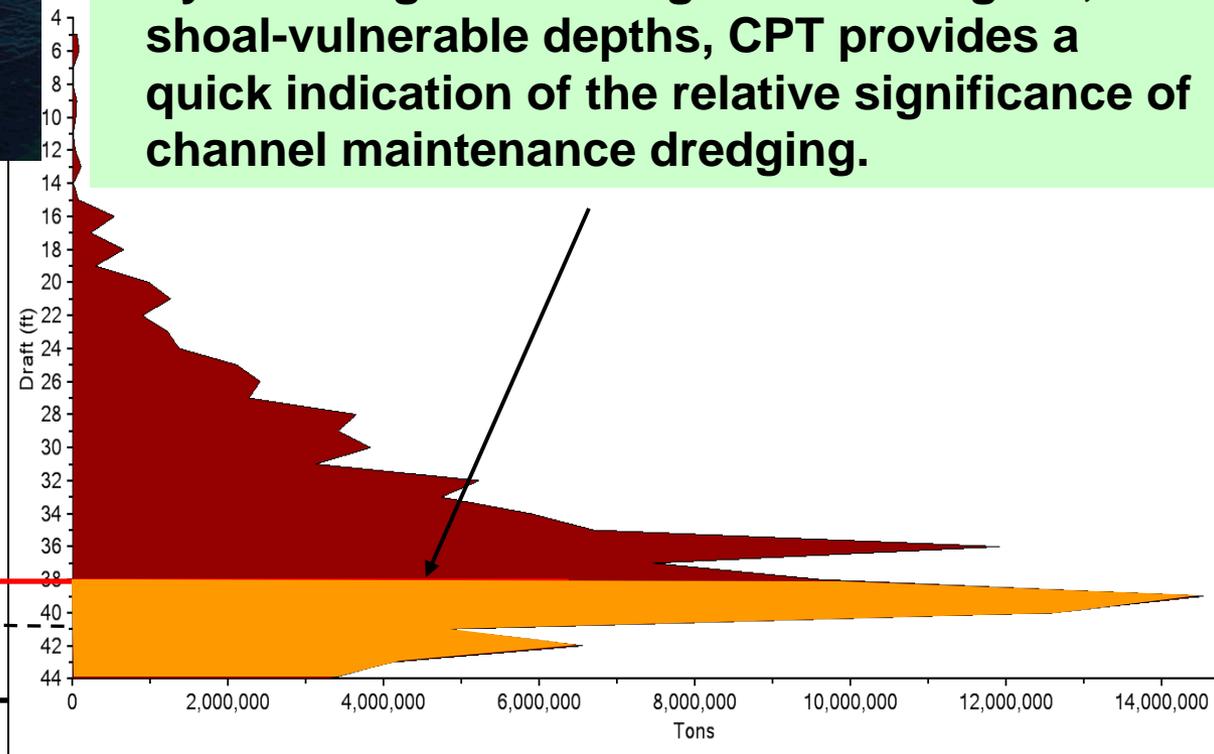
Charleston, SC:
22.6M tons in 2007 ~ #37 nationally.
\$41 billion import value = \$51.4M into HMTF.
USACE invested \$11.1M in O&M.



Channel Prioritization Tool (CPT)



- Portfolio management for USACE navigation channels should account for both physical condition and depth utilization in prioritizing projects for O&M funding.
- By focusing on the cargo at the marginal, shoal-vulnerable depths, CPT provides a quick indication of the relative significance of channel maintenance dredging.





Channel Prioritization Tool (CPT)



CPT

File Help

Input Preferences Ranking Mobile Bar Channel Houston Ship Channel-Deer Park Reach (Carpenters Bayou to Greens Bayou) Oakland Outer Harbor

Limiting Depth / Anticipated Shoaling

- Do not calculate a cutoff depth
- Use full width values (if available)
- Use half width values (if available)

If limiting depth and/or anticipated shoaling values are not available, please supply default values to use.

20 Default Limiting Depth (ft)

2 Default Anticipated Shoaling (ft)

Years

- Query all years
- Query selected years

Select Years

Commodities

- Query all commodities
- Query selected commodities

Select Commodities

Traffic

- Query all traffic types
- Query selected traffic types

Export Domestic Outbound

Import Domestic Inbound

Font Size

Small

Tonnage Mode

- Docked
- Transit

Save Changes (Settings will only apply to newly opened screens)

Save Changes (Select specific screens to apply settings to)

Reach Details

- Show Traffic Breakdown on Table
- Show Traffic Breakdown on Histogram
- Show Commodity Breakdown on Histogram

All Top N 5

Select Open Screens

- Ranking
- Mobile Bar Channel
- Houston Ship Channel-Deer Park Reach (Carpenters B
- Oakland Outer Harbor

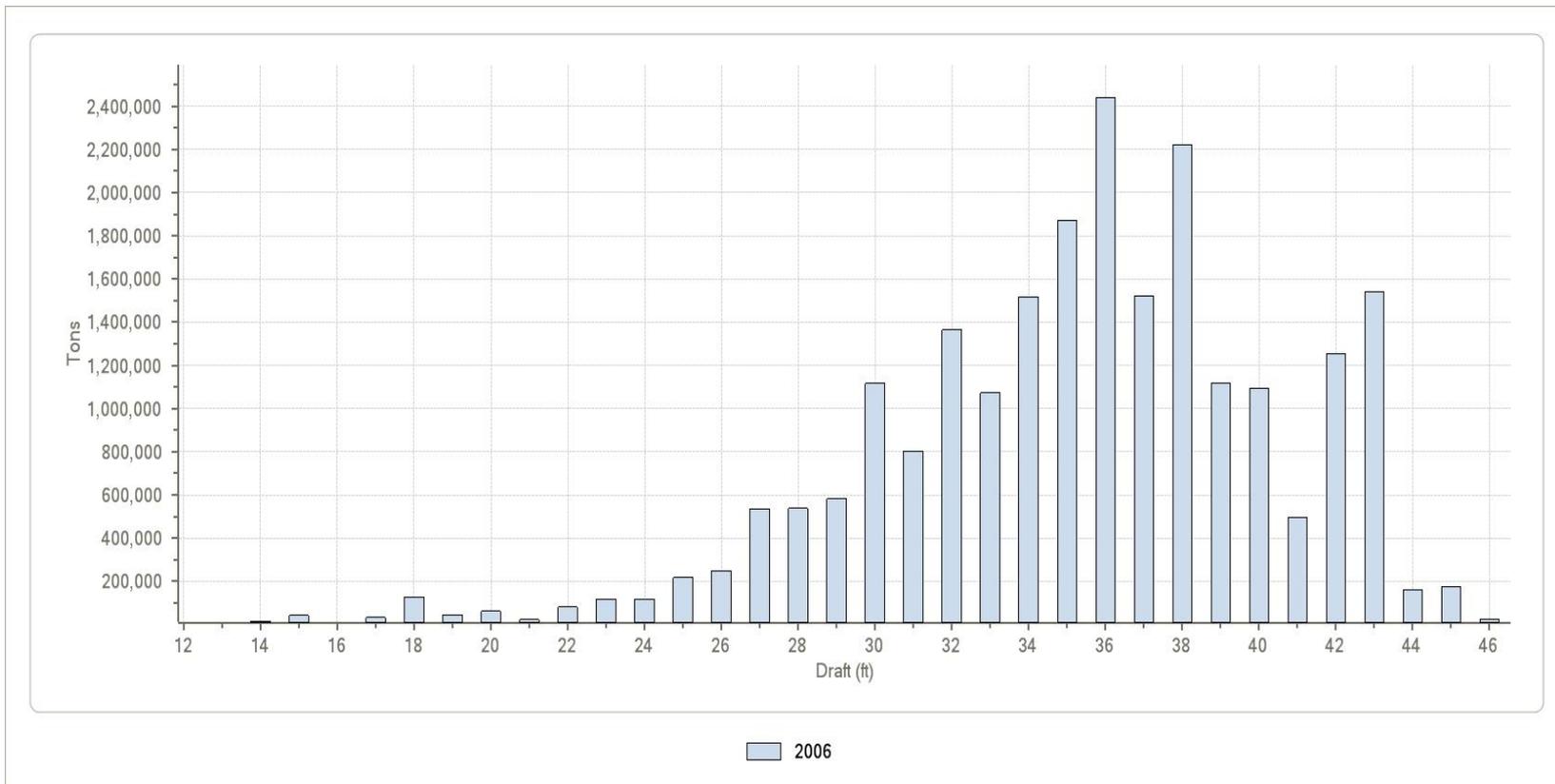
OK Cancel



Channel Prioritization Tool (CPT)



- Tonnage-draft breakdown for high-use entrance channel.

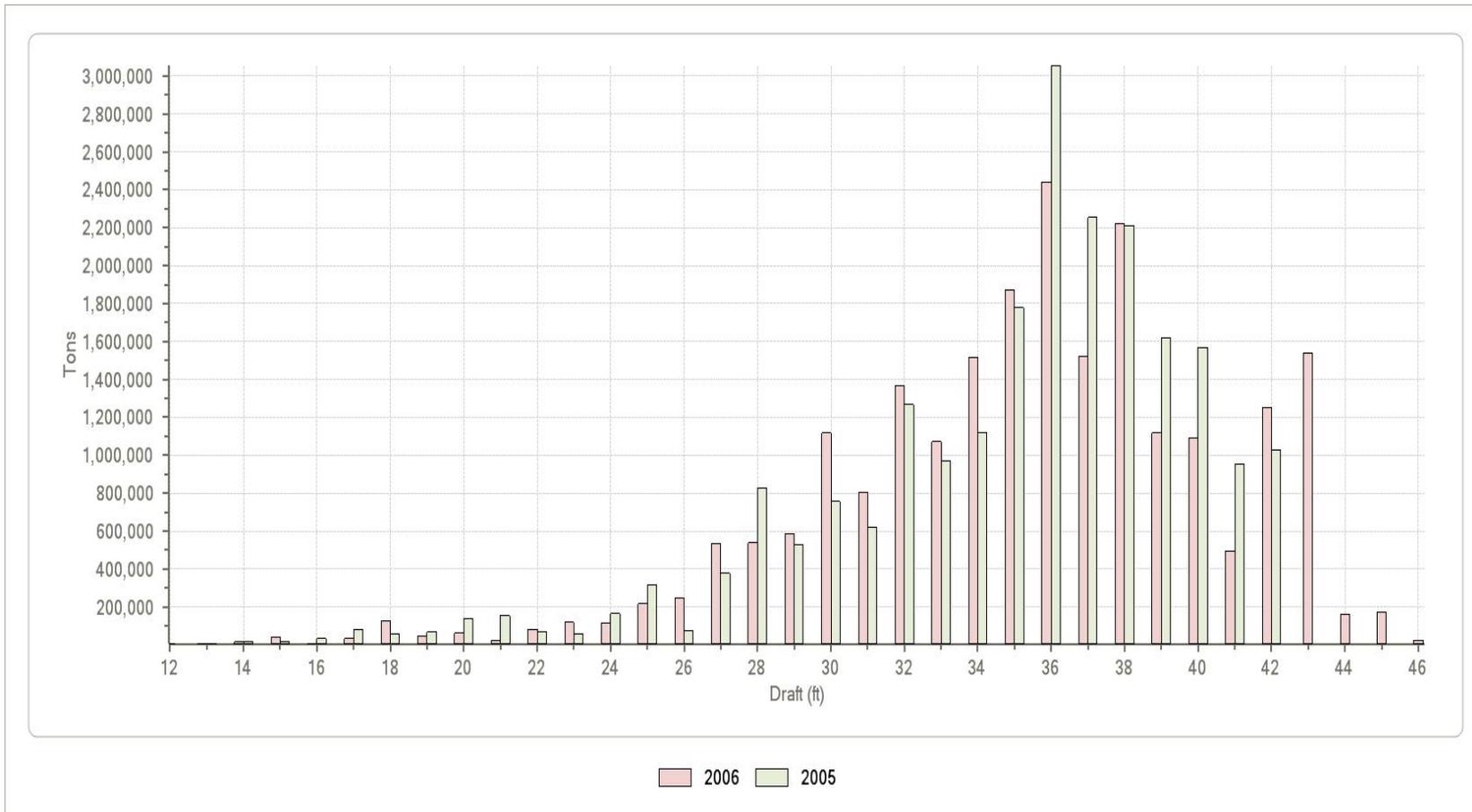




Channel Prioritization Tool (CPT)



- Year-to-year trends can be analyzed.

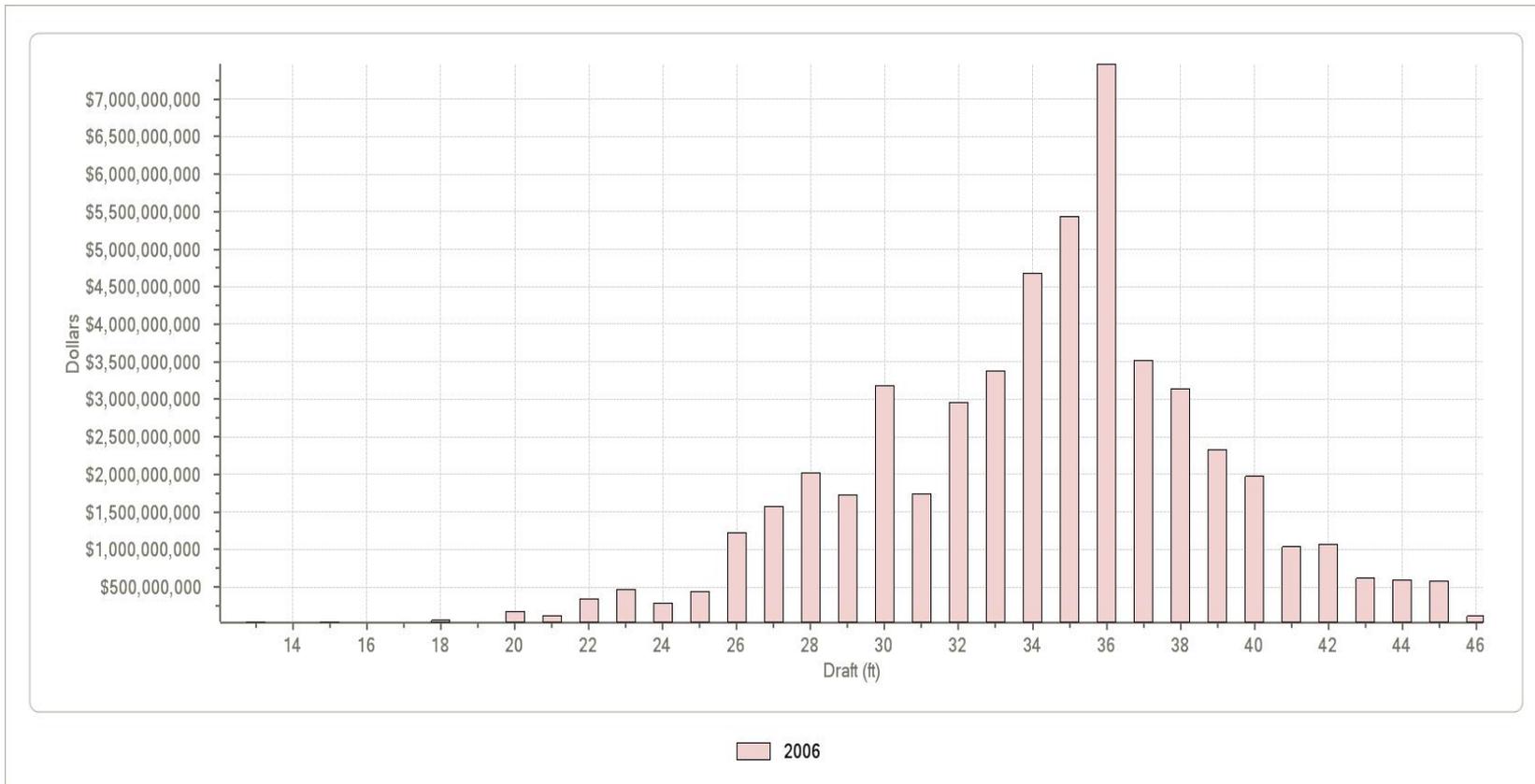




Channel Prioritization Tool (CPT)



- \$-value estimates for commodity groupings can also be tabulated.

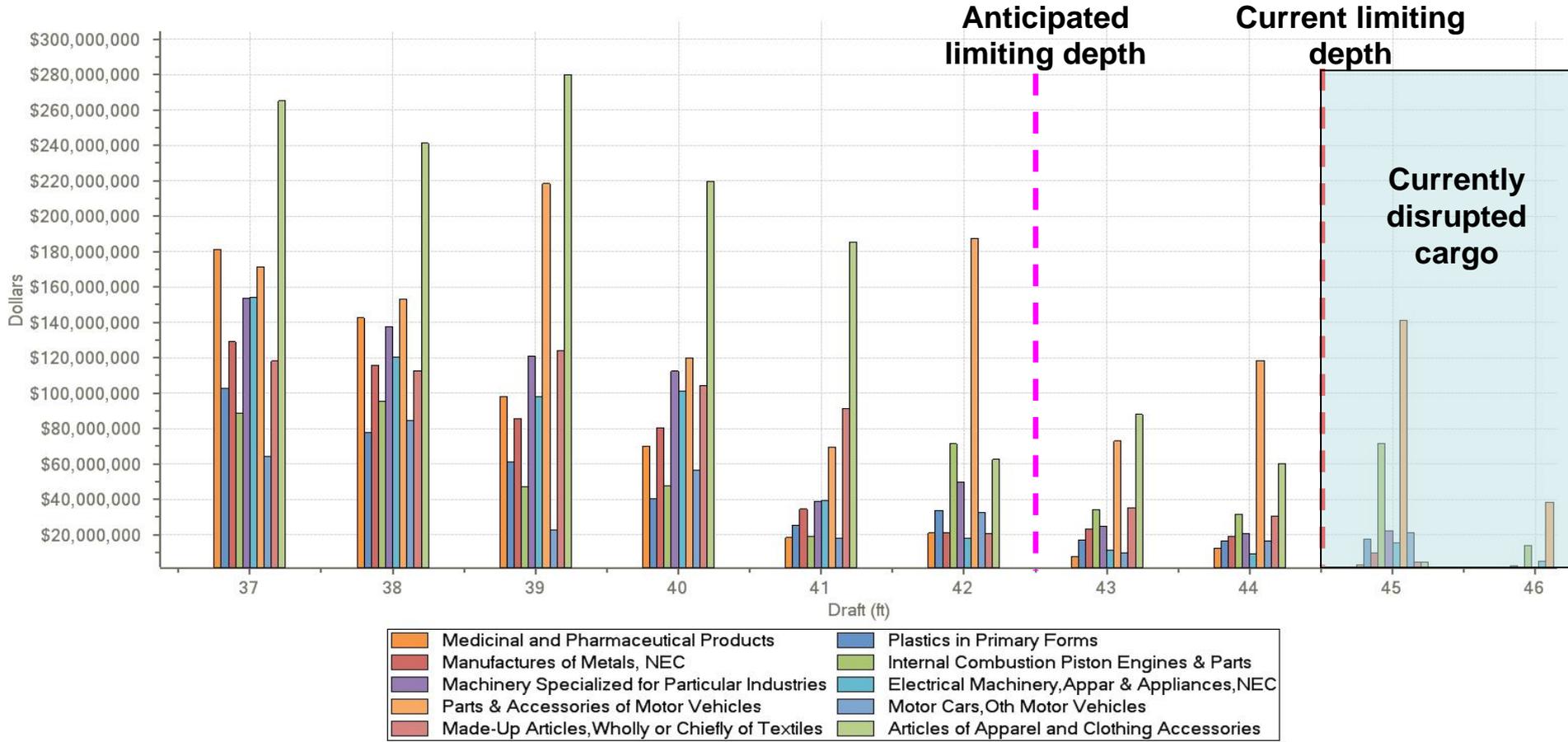




Channel Prioritization Tool (CPT)



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

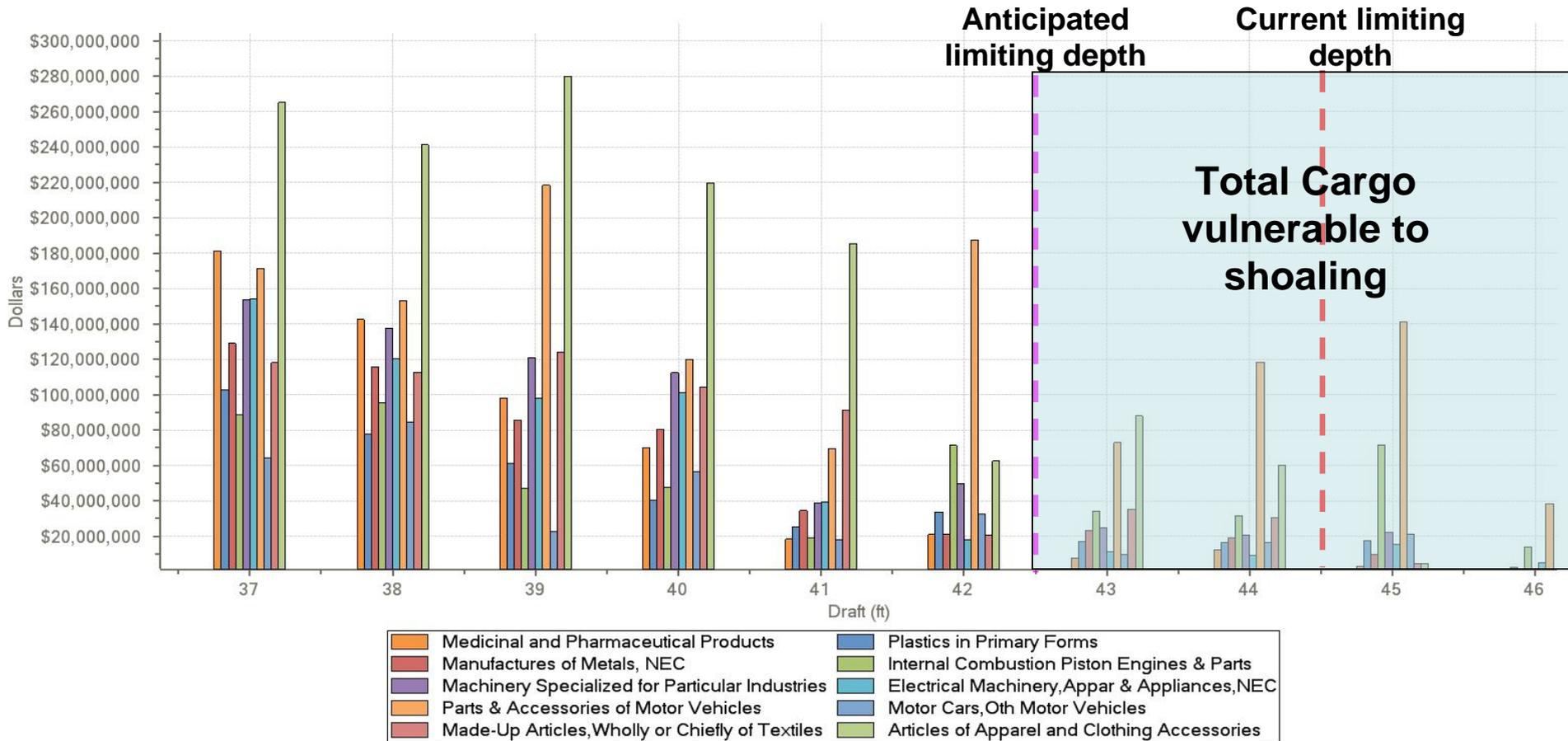




Channel Prioritization Tool (CPT)



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



Channel Prioritization Tool (CPT)



Harbor	Reach	Tons
Galveston_TXCity_HSC	Galveston Harbor Channel	274,161,331
Galveston_TXCity_HSC	Galveston Bay Entrance Channel	274,161,331
Galveston_TXCity_HSC	Bolivar Roads Channel	262,124,478
Galveston_TXCity_HSC	Houston Ship Channel--Middle (Trinity River Channel to Bayport Channel)	213,226,530
Galveston_TXCity_HSC	Houston Ship Channel--Lower (Bolivar Rds. to Trinity River Channel)	213,226,530
Galveston_TXCity_HSC	Houston Ship Channel--Upper Bay (Bayport Channel to Cedar Bayou)	213,003,732
Galveston_TXCity_HSC	Houston Ship Channel--Baytown Bend (Fred Hartman Bridge to Goat Island)	189,690,340
Galveston_TXCity_HSC	Houston Ship Channel--Spilman's Island Reach (Cedar Bayou to Fred Hartman Bridge)	189,690,340
Galveston_TXCity_HSC	Houston Ship Channel--Peggy Lake Reach (Goat Island to San Jacinto Ferry Crossing)	150,646,587
Sabine	Sabine Pass Channel	149,550,866
Sabine	Sabine Outer Approach Channel	
Sabine	Port Arthur Ship Channel	
Galveston_TXCity_HSC	Houston Ship Channel--San Jacinto Reach (San Jacinto	
Galveston_TXCity_HSC	Houston Ship Channel--Deer Park Reach (Carpenters Ba	
Sabine	Sabine-Neches Canal--Lower	
Sabine	Sabine-Neches Canal--Upper	
Sabine	Neches River--Below Reserve Fleet	
Mobile	Mobile Lower Bay Channel	
Mobile	Mobile Bar Channel	
Calcasieu	Calcasieu Ship Channel (Mile 5 to Jetties)	70,622,320
Calcasieu	Calcasieu Pass and River Entrance Channel	70,622,320
Calcasieu	Lower Calcasieu River (Mile 17 to Mile 5)	70,579,132
Port Everglades	Port Everglades Entrance Channel	70,242,101
Calcasieu	Calcasieu Middle Reach (Mile 29 to 17)	64,773,876
Pascagoula	Pascagoula Channel	64,669,636
Mobile	Mobile Upper Bay Channel	63,226,843
Pascagoula	Bayou Casotte	63,201,768
Pascagoula	Bayou Casotte Approach	63,201,768
Honolulu	Honolulu Entrance Channel	59,159,322
Port Everglades	Port Everglades Harbor Middle Turning Basin (Lake Mabel)	58,711,133
Richmond	Outer Harbor Channel	56,808,435

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

2003-2006

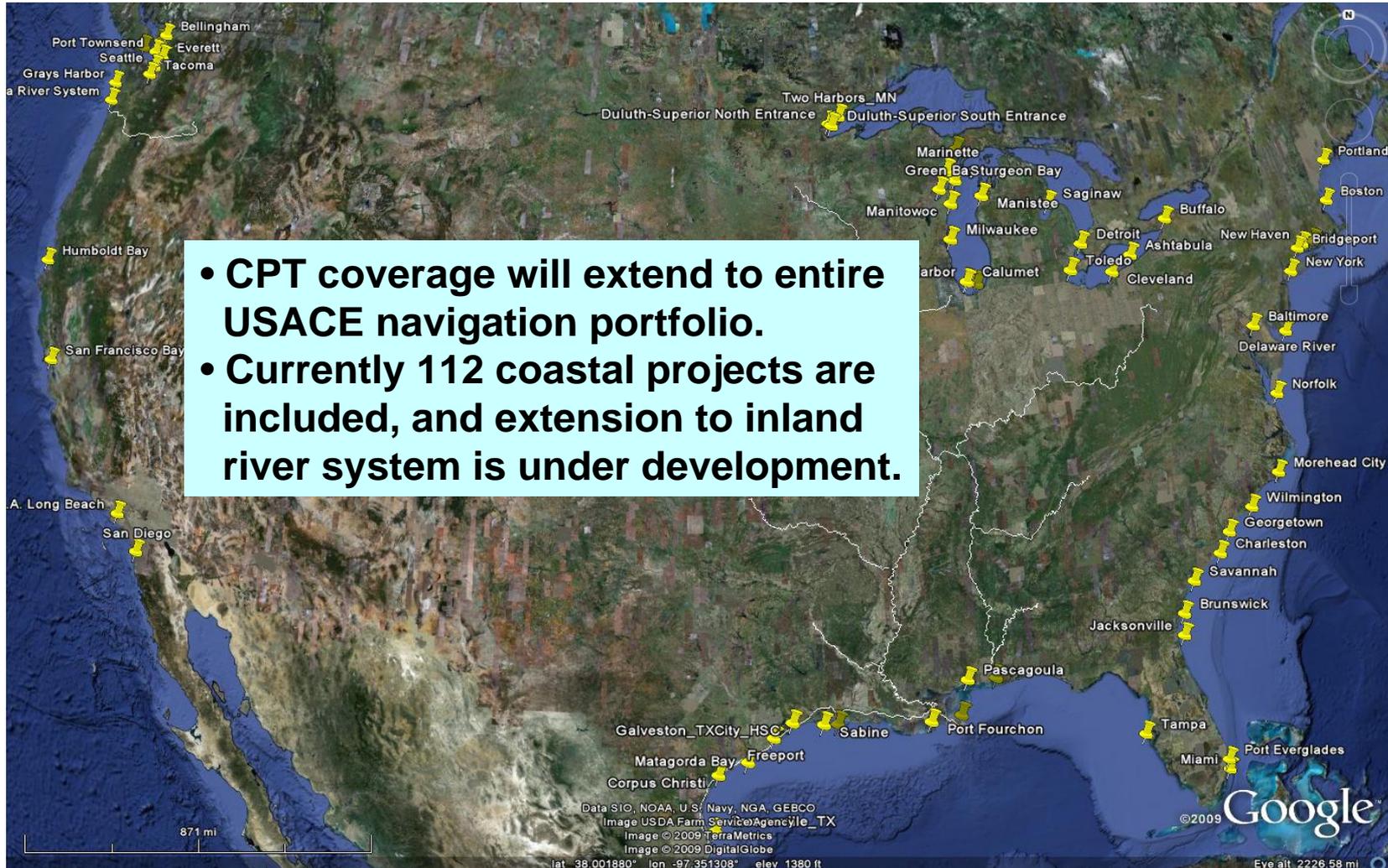


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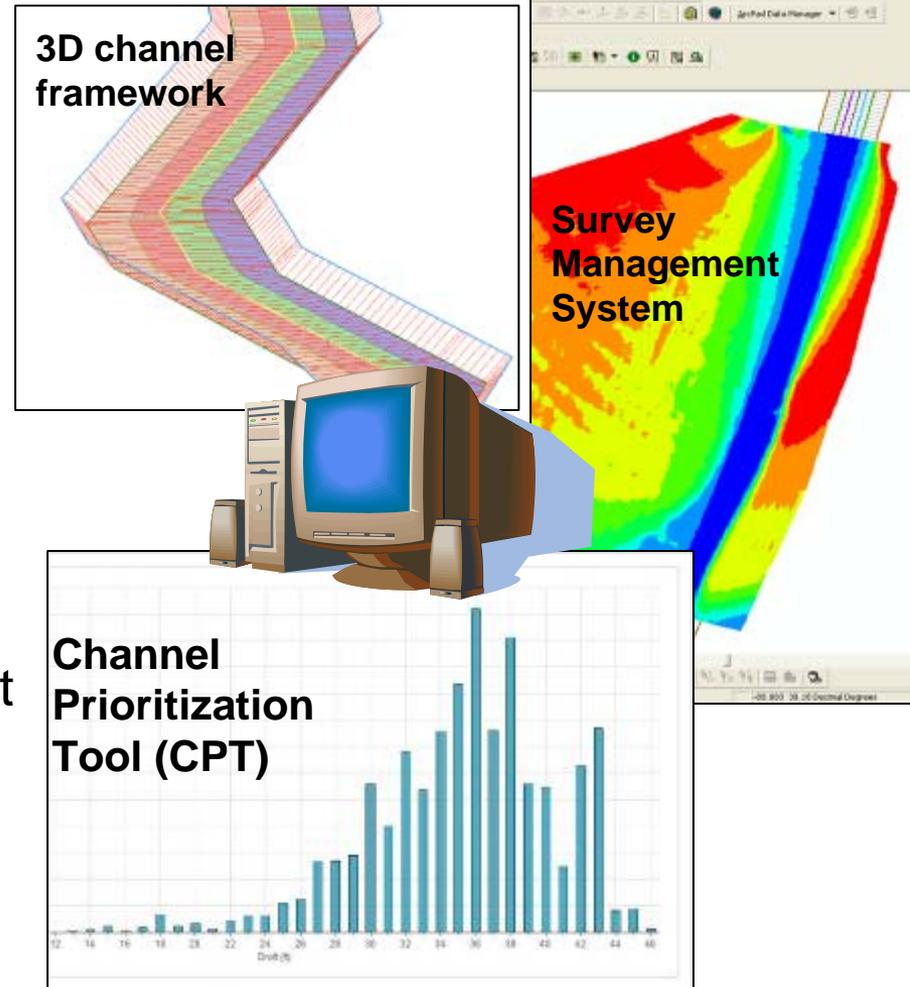


Next steps:

- Integrated suite of software tools, combining
 - Channel Prioritization Tool (CPT)
 - 3D channel framework with segment connectivity
 - Survey Management System

Goal:

- Consistent, objective decision-support package that is applicable across the entire USACE navigation portfolio of maintained channels.





Channel Prioritization Tool (CPT)



Questions?

Dr. Kenneth Ned Mitchell

Kenneth.n.mitchell@usace.army.mil

601-634-2022

Ashley Frey

Ashley.e.frey@usace.army.mil

601-634-2006