Historic U.S. Coastal Navigation Sediment Placement

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ASBPA'S 90TH ANNIVERSARY | LONG BRANCH, NJ
OCTOBER 26, 2016

Regional Sediment Management

Regional Sediment Budgets
Local Actions=Regional Benefits

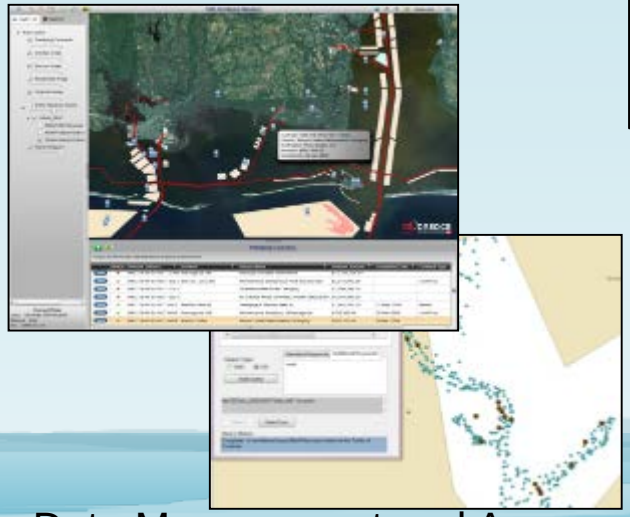
RSM Collaboration 2000-2016

Nearshore Placement

Thin-Layer Placement

Fine Sediment Losses

Ecosystem Value



Data Management and Access

Guidance, Lessons Learned

Project Goal and Objective

- Goal: To determine the extent to which Regional Sediment Management (RSM) goals have been implemented across the USACE Coastal Districts
  - How much navigation sediment is placed beneficially?
- Objectives: Create geodatabase of govn't datasets
- Refine government datasets with more detailed information from the Districts (2 databases)
  - Disposal/placement intent
  - Reduce unknown placement types

Available Data and Statistics

- 200-300 Mcy/yr Navigation Dredging by USACE[1]
- 20-30% placed beneficially[1]
- Update with existing USACE Datasets:

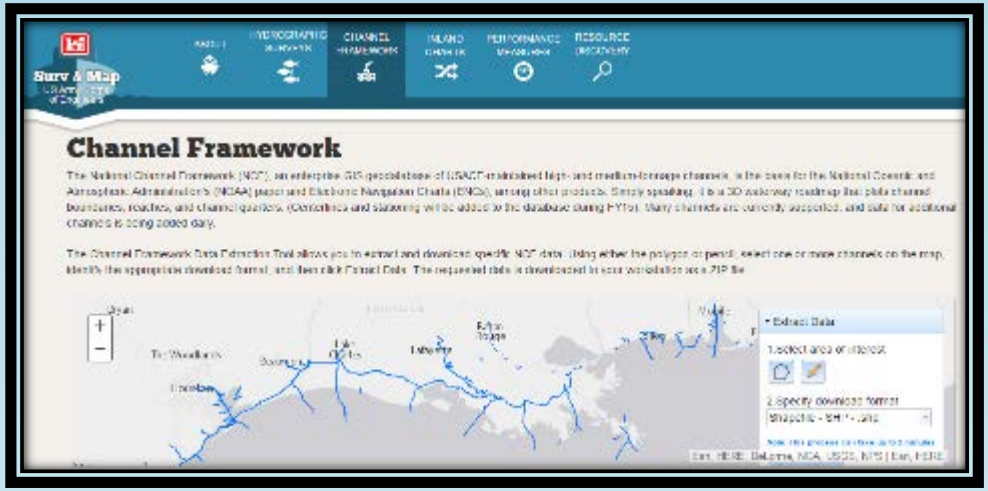
2001-2014 156

1998-2014 220

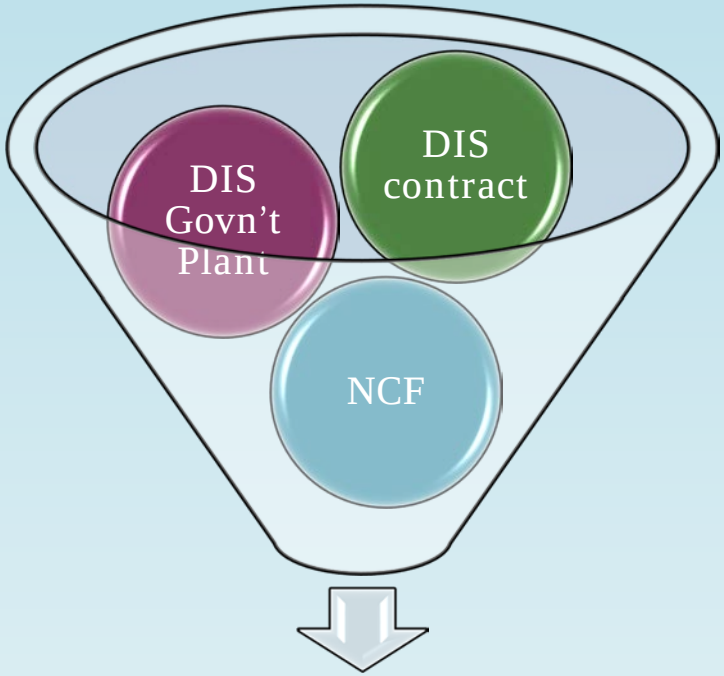
376
Coastal Navigation Projects

[1]EPA & USACE, 2007

RSM Phase 2: GIS Database

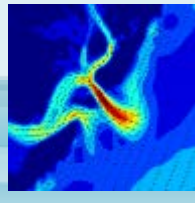


- Utilize existing data from 3 datasets
- Automate data integration
  - Specific rules
  - Standardize project names w/in Districts
  - Repeatable
- Geodatabase
- Online data review
  - Dynamic link
  - Minimize review times

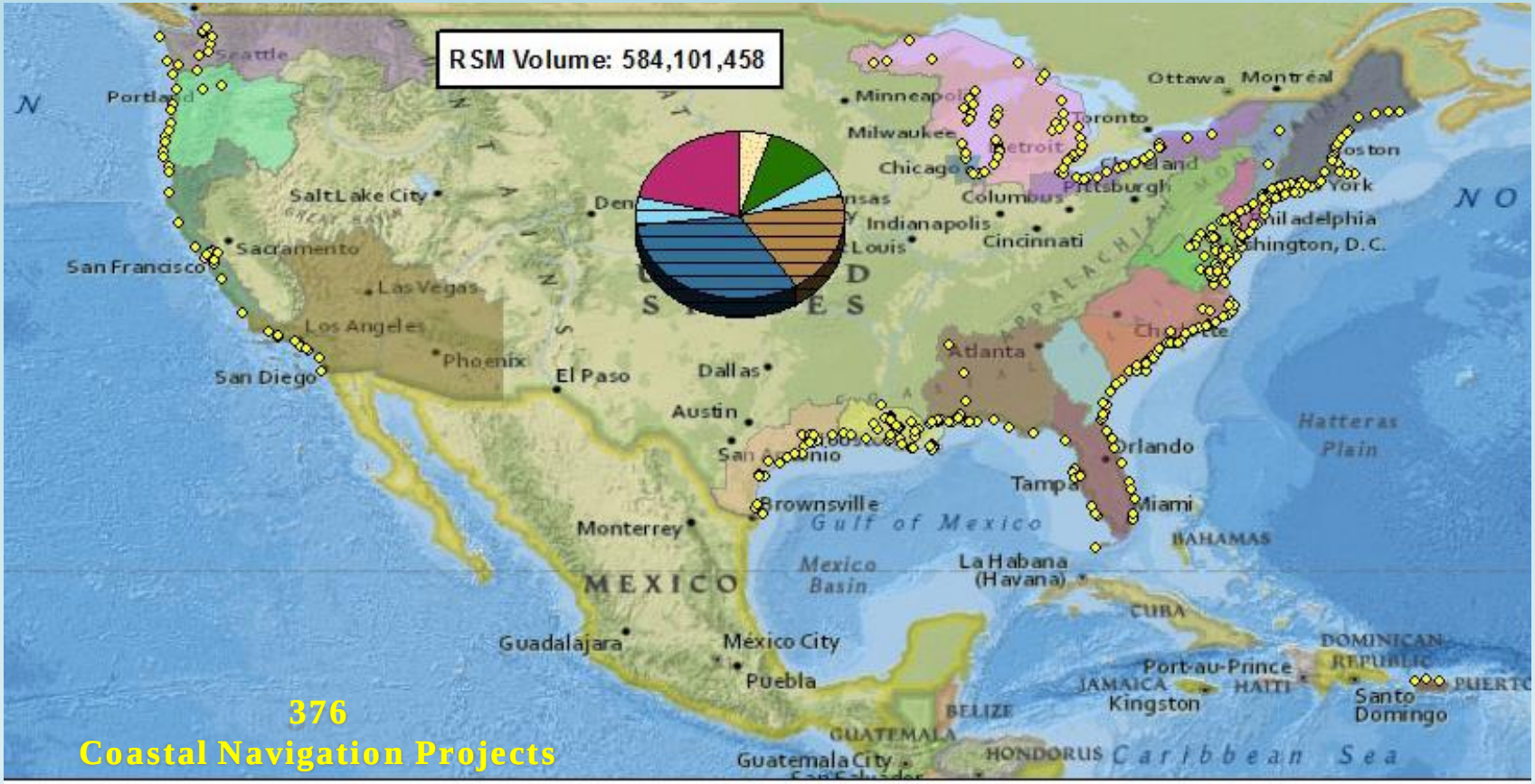


Combined Data

USACE Civil Works Information System (CWIS) Numbers



Database #1:
USACE Datasets (1998-2014)

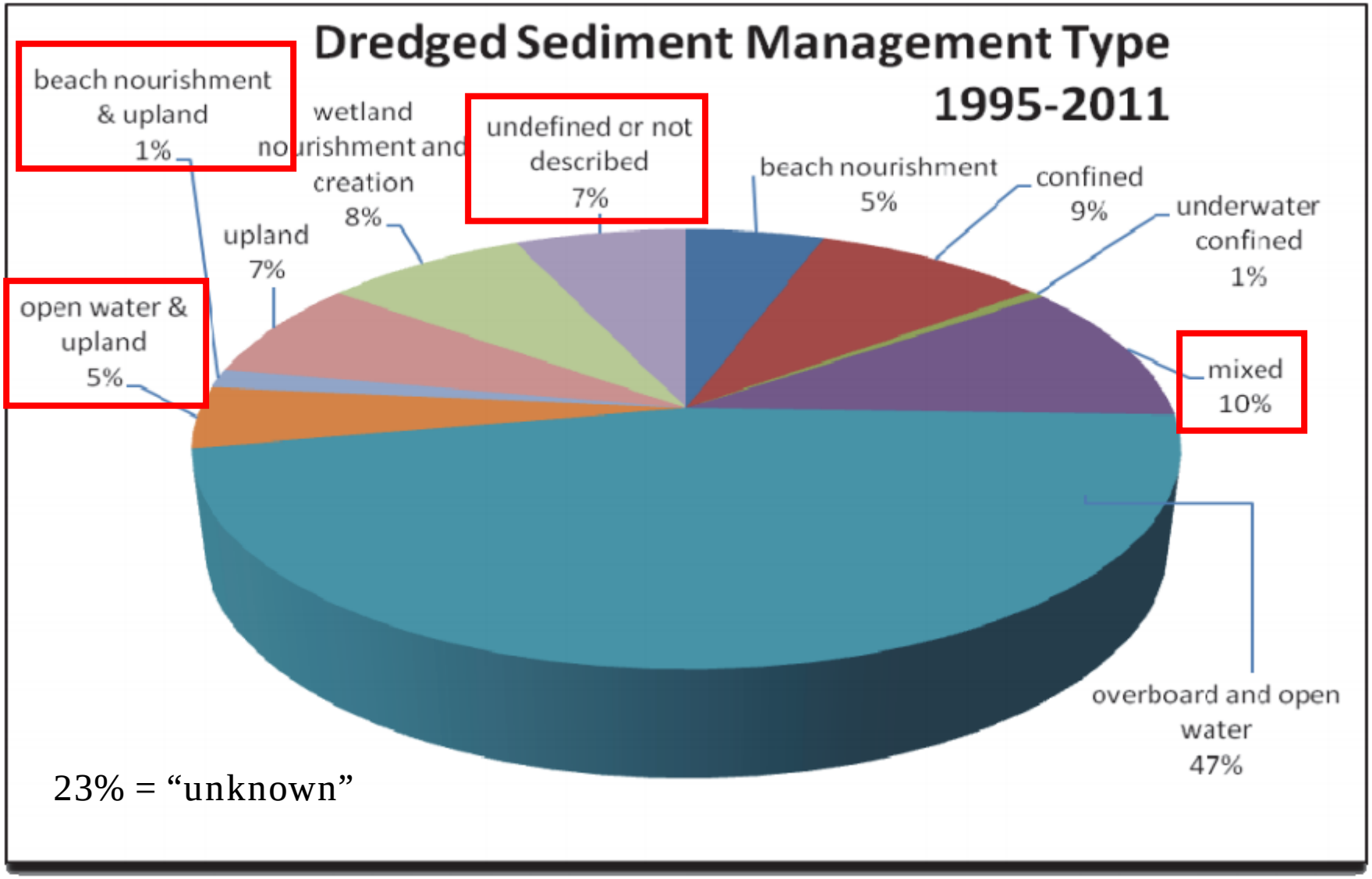


Coastal Navigation Sediment Placement and Disposal: National Datasets Database (1998-2014)

Total Volume 2,678,937,544 cy
3,284 Dredging Events
913 RSM Events

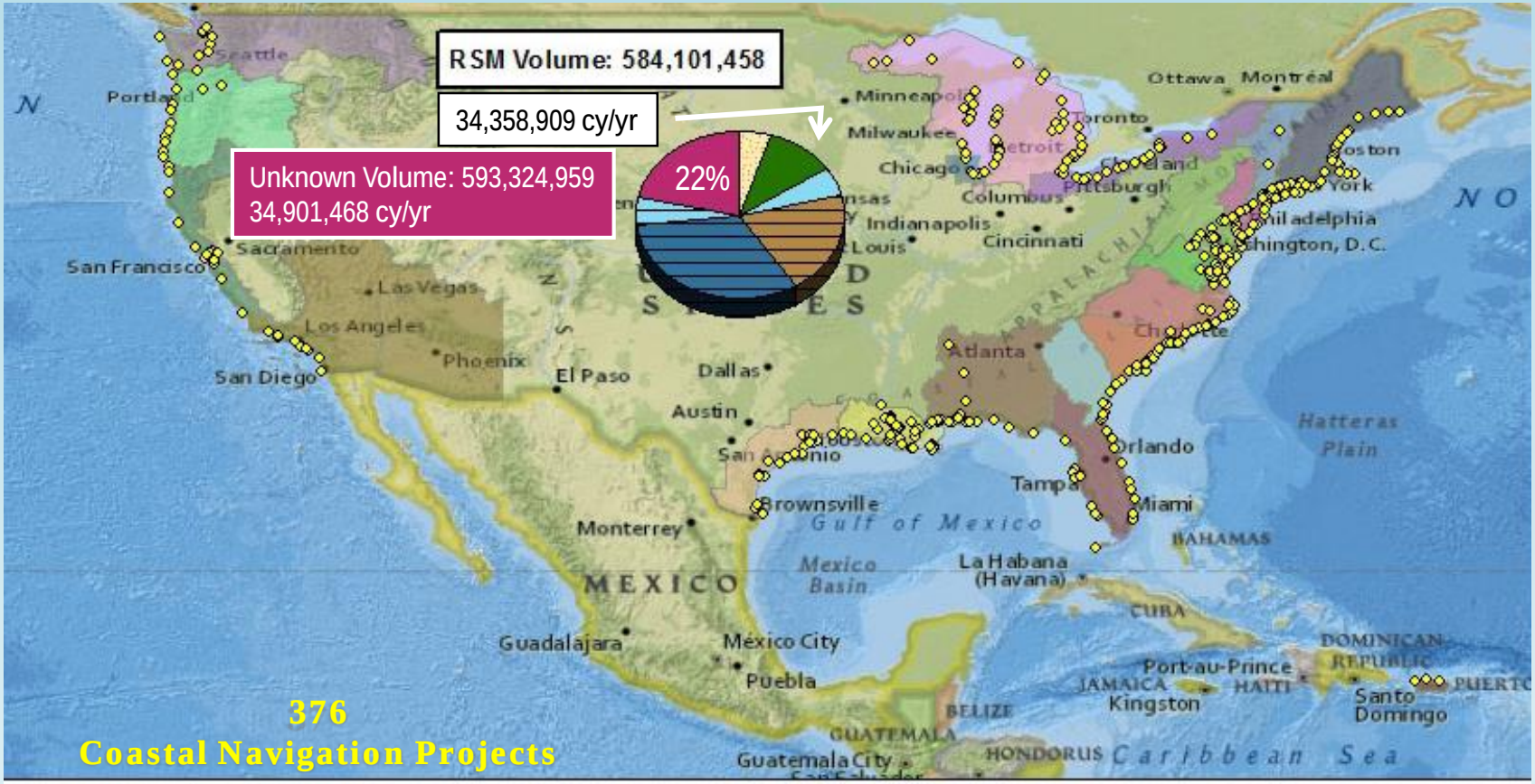
Beach	Open Water RSM	Open Water Disposal
Wetland	Littoral RSM	Littoral Disposal
Upland RSM	Upland Disposal	Unknown

INTENT



Modified from Childs 2015

Database #1: USACE Datasets (1998-2014)



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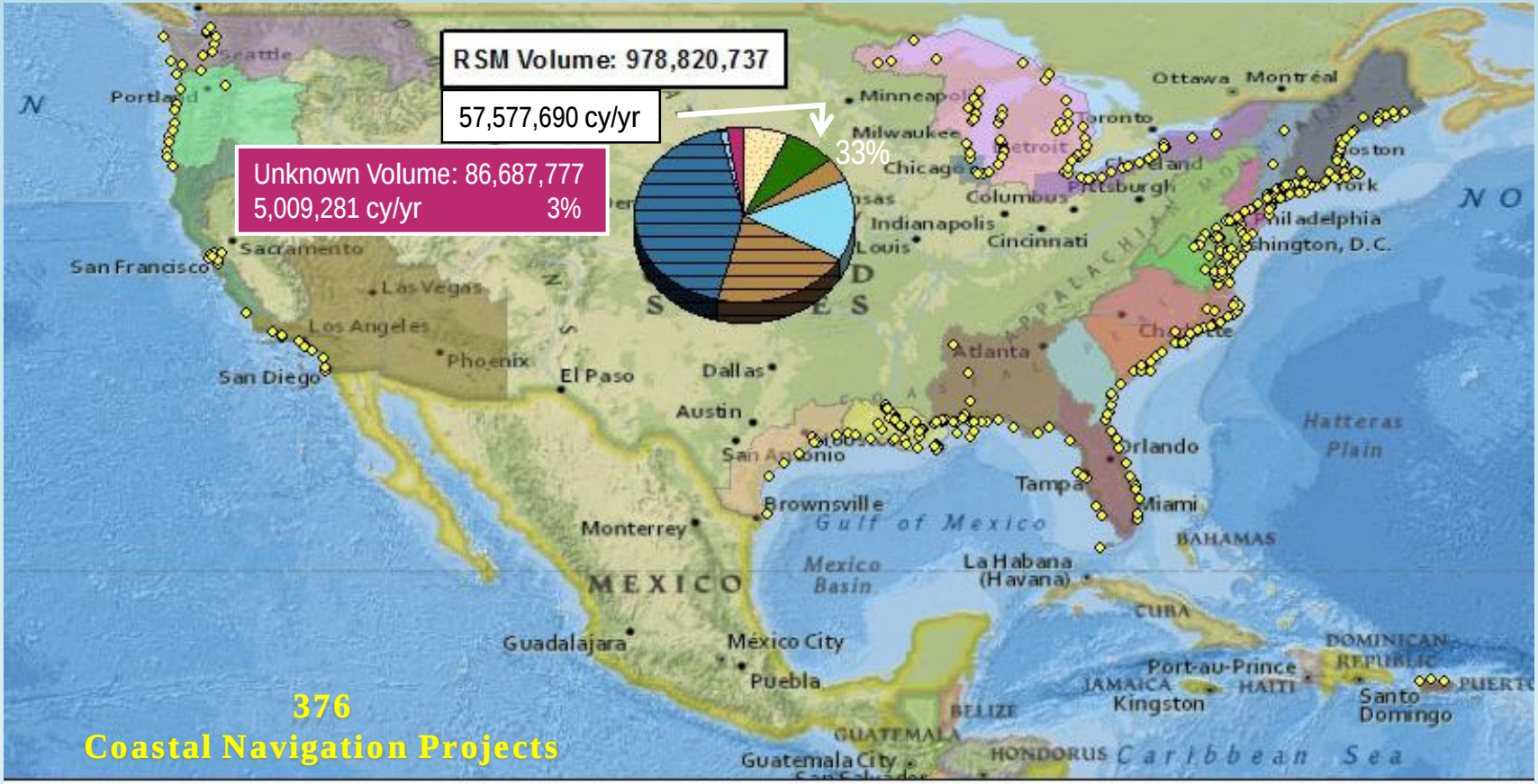
INTENT

Data Refinement
Reduce Unknown Volumes & Clarify Intent

- QA/QC 3,284 individual projects since 1998
- Excellent DIS data = no unknowns
  - SAC, LRB
- District databases
  - MVN, SPL, SPN, NWP, NAE
- Interviews – discuss specifics, e.g., intent

Database #2: District-specific & QCed (1998-2014)



Coastal Navigation Sediment Placement and Disposal: District-specific and QCed Database (1998-2014)

Total Volume 2,980,179,998 cy

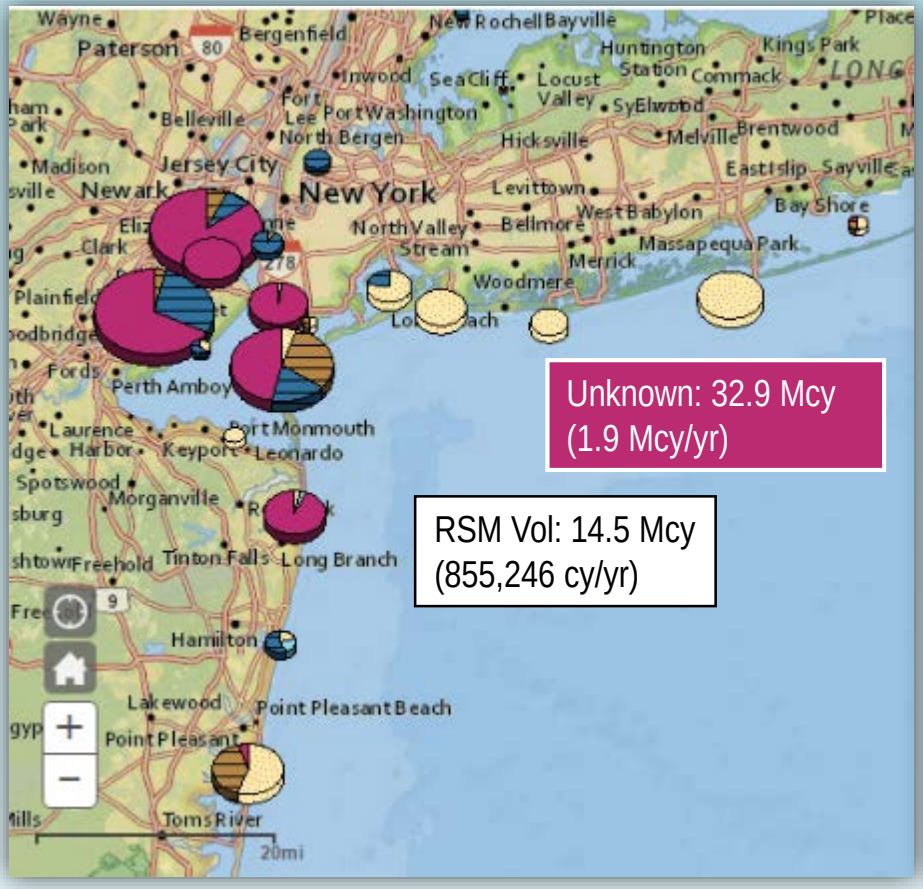
4,094 Dredging Events

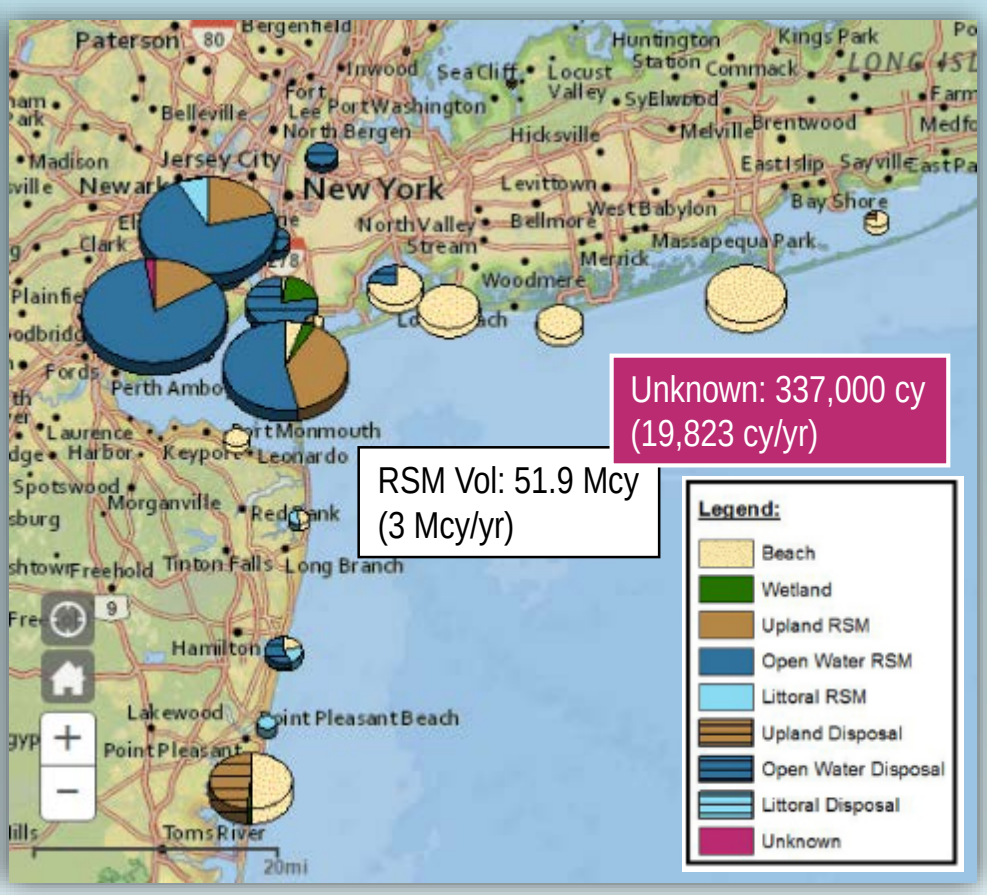
1,505 RSM Events

Beach 7.5%	Open Water RSM	Open Water Disposal
Wetland 7.8%	Littoral RSM 12.5%	Littoral Disposal
Upland RSM	Upland Disposal	Unknown

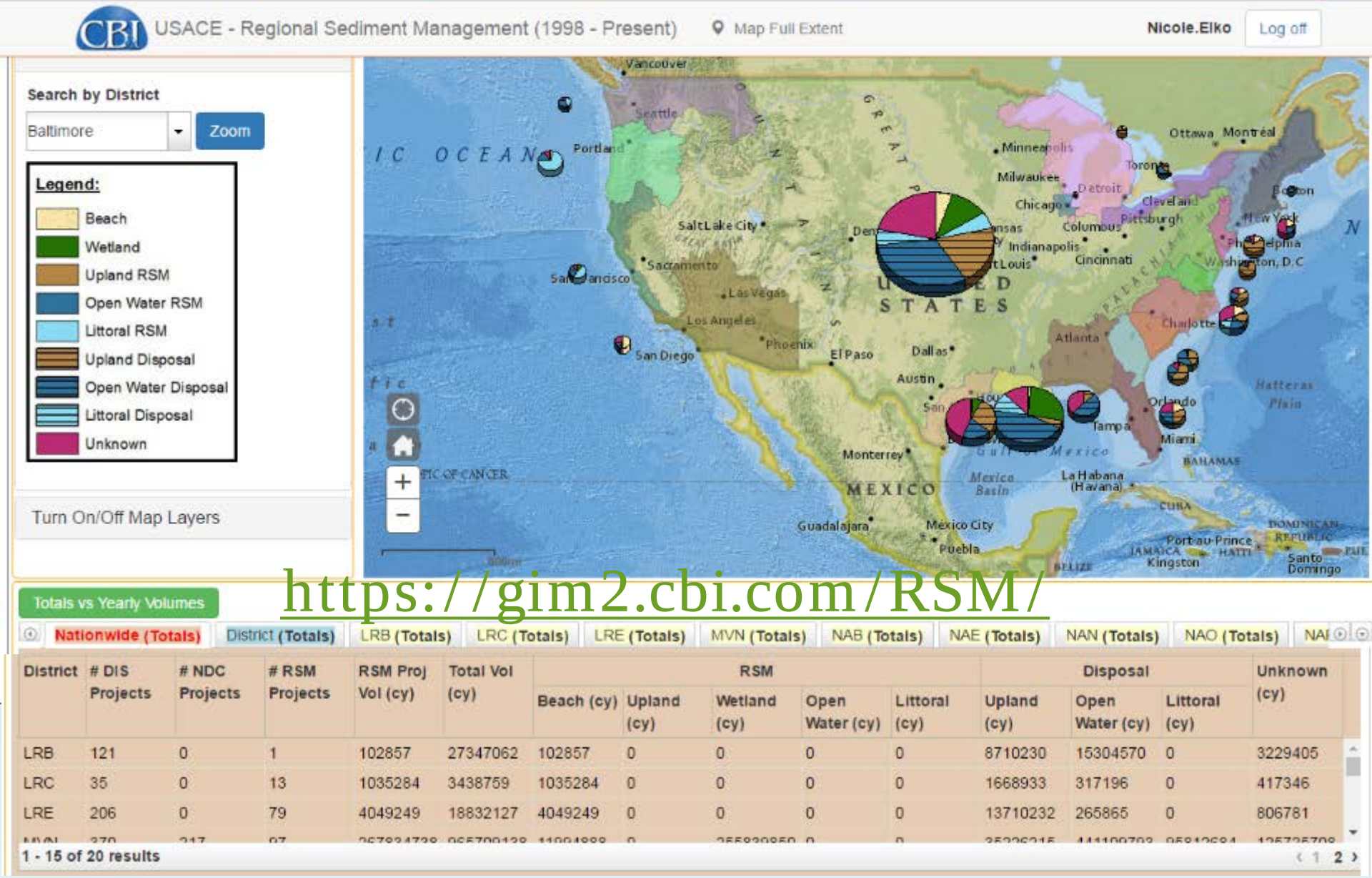
INTENT

Example of Data Refinement: New York District





NAN	National Datasets (cy) 1998-2014	National Datasets (cy/yr)	District-specific & Quality Checked (cy) 1998-2014	District-specific & Quality Checked (cy/yr)
Total Volume Dredged	63,396,025	3,729,177	60,296,025	3,546,825
Volume Placed Beneficially	14,539,198	855,246	51,895,505	3,052,676
% Placed Beneficially	23%	23%	86%	86%
# Dredging Events	120	7.5	119	7.4
# Dredging Events Placed Beneficially ("RSM" Events)	42	2.625	94	5.875
% Dredging Events Placed Beneficially	35%	2%	79%	5%
Unknown volume	32,923,022	1,936,648	337,000	19,823
Volume Placed on Beaches	14,187,915	834,583	15,446,287	908,605
Volume Placed in Wetlands	0	0	975,000	57,352
Volume Placed Beneficially in Littoral Zone	351,283	20,663	1,351,283	79,487
Volume Placed Beneficially in Open Water	0	0	25,590,030	1,505,295
Volume Placed Beneficially Upland	0	0	8,532,905	501,935
Volume Disposed (not placed beneficially)	48,856,827	2,873,931	8,400,520	494,149



https://gim2.cbi.com/RSM/

District	# DIS Projects	# NDC Projects	# RSM Projects	RSM Proj Vol (cy)	Total Vol (cy)	RSM					Disposal			Unknown (cy)
						Beach (cy)	Upland (cy)	Wetland (cy)	Open Water (cy)	Littoral (cy)	Upland (cy)	Open Water (cy)	Littoral (cy)	
LRB	121	0	1	102857	27347062	102857	0	0	0	0	8710230	15304570	0	3229405
LRC	35	0	13	1035284	3438759	1035284	0	0	0	0	1668933	317196	0	417346
LRE	206	0	79	4049249	18832127	4049249	0	0	0	0	13710232	265865	0	806781
MVN	370	217	97	267834738	965709138	11994888	0	255839850	0	0	35226215	441199793	95812684	125735708

Summary

- 1st time navigation dredging databases visualized on a National scale
- 2007 Statistics:
  - 200-300 Mcy/yr Navigation Dredging by USACE[1]
  - 20-30% placed beneficially[1]
- This Study:
  - 175 Mcy/yr Coastal Navigation Dredging by USACE
  - 33% placed beneficially (57.6 Mcy/yr)
  - Unknown Disposal reduced from 35 Mcy/yr to 5 Mcy/yr

[1]EPA & USACE, 2007

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Questions?