### Re-Establishment of In-Bay Placement Mobile Harbor

Nathan D. Lovelace P.E. Operations Division U.S. Army Corps of Engineers Mobile District April 11, 2017







# NATURAL PROGRESSION



**BUILDING STRONG** 

- Introduction to Mobile Harbor
- Problem Statement
- Establishment of IWG
- In-Bay Placement
- Impact to Navigation
- Culture Shift







#### **BUILDING STRONG**



## Mobile Harbor



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- Ranked in the top 10 Leading U.S. Port
- 65 Million Tons Domestic/Foreign
- 40 Miles of Main Channel
  - ► 4.5 Miles to -40 ft
  - ► 35.5 Mile to -45 ft
- Fed by the 4<sup>th</sup> Largest Watershed in U.S.
- Annual Shoaling Rate Approx 6.5 MCY
  - ► 1.2 MCY River
  - ► 4 MCY Bay
  - ► 1 MCY Theodore
  - ► 0.3 MCY Bar



# **Problem Statement**



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- Lack of disposal areas within the Bay system
- Backlog of maintenance material leading to depth/width restrictions
- WRDA 1986
  - Authorization for widening and deepening
  - Dredged material from Mobile Channel shall be disposed of in open water in the Gulf of Mexico
- WRDA 1996
  - May consider alternatives to disposal of dredged material in the Gulf of Mexico, including environmental acceptable alternatives for beneficial uses of dredged material and environmental restoration



# **Establishment of the IWG**



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- Built on existing RSM relationships and principles
- Presented the watershed study/sediment budget
- Challenged the team to look at the evidence and decide for themselves "Is it smart to continue removing 4 MCY from the Bay and hauling it to the Ocean?"
- IWG initiated several studies/demo projects to better understand the capabilities of fine grain sediments
  - ► Filling of Brookley Hole using channel material
  - Burlap Tubes demo for potential use in large BU site



### Mobile Bay Interagency Working Group (IWG)



- Alabama State Port Authority (ASPA)
- USACE, Mobile District
- USACE, Engineering Research and Development Center (ERDC)
- Alabama Dept. of Conservation and Natural Resources (ADCNR), State Lands Division
- ADCNR, Marine Resources Division (MRD)
- ADCNR, Wildlife and Freshwater Fisheries Division (WAFF)
- Alabama Dept. of Environmental Management (ADEM)
- Geological Survey of Alabama (GSA)
- U.S. Fish and Wildlife Service (FWS)
- National Marine Fisheries Service (NMFS), Habitat Conservation Division
- Mobile Bay National Estuary Program (NEP)
- Environmental Protection Agency (EPA)
- Dauphin Island Sea Lab (DISL)
- The Nature Conservancy (TNC)
- Mobile County Environmental Department
- Mobile Bay Keeper

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### **BU of Dredged Material to Fill Brookley Hole**



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- Recommendation to pursue permitting processes to implement BU action
- Fill Options
  - Fill to some level of productivity
  - Fill to surrounding grade through successive dredging cycles
  - Combination of emergent feature w/ marsh vegetation grading into shallow submerged environment
- 1.2 MCY of initial fill from upper Mobile Bay Channel
- Monitoring results used to determine desired level of restoration
- Initial fill completed September 2012
- Leveraging other research programs (DOER)
  - Conducted baseline characterizations
  - Continued post-fill monitoring



### **BU of Dredged Material to Brookley Hole**





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# **IWG Progress**



- IWG agreed to consider In-Bay placement with the Corps commitment to a thin-layer demo and constant pursuit of other BU opportunities (i.e. large BU site)
- Corps spent =\$1M to model thin-layer demo
  - Sediment Profiling SedFlume Push Cores
- Results were amazingly informative and positive
- IWG had successfully fostered the efforts that would ultimately prevent approx. 2-3 MCY annually from leaving the Mobile Bay system.
- IWG team established their identity by shifting the culture of managing fine grain channel material.



## **Sediment Profiling Imagery**







### **OLDER DREDGED MATERIAL SPI IMAGED 09/26/2012**



U.S.ARM Oxygenated Surface Layer Reworked by 🔎 **Currents or** Wave action

2 inches

**Buried Native Bed** 







## **Modeling Conclusions**



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- Approximately 35% of the sediment that erodes from the designated disposal areas is transported and deposits in the navigation channel.
- The remaining 65% is widely dispersed throughout the bay by wind-, river-, and tide-driven currents.
- The dredge material placed in thin-layers is less erodible (~ 45%) than native sediment.
- Sediment becomes remobilized into Bay's natural sediment system (Not transported along the bottom)



## **In-Bay Placement**



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### June 30, 2014 Received CZM and WQC for thin-layer placement in Mobile Bay In-Bay placement fulfilled WRDA 96 standards "environmental acceptable alternatives for beneficial uses of dredged material and environmental restoration"

LANCE R. LEFLEUR DIRECTOR	ADDEENM Alabama Department of Environmental Management	
	adem.alabama.gov 1400 Coliseum Bivd. 36110-2400 Pos: Office Box 301463	
	Montgomery, Alabama 36130-1463 (334) 271-7700 = FAX (334) 271-7950	
June 30, 2014		
Mr. Curtis Flakes U.S. Army Corps of Engineers P. O. Box 2288 Nobile, AL 36628-0001		
RE: State of Alabama: Coasta Facility: Mobile Harbor Fe Nobile District U.S. Army Alabama Department of	I Consistency Decision derai Navigation Project, Mobile County, Alabama Corps of Engineers (USACE) Permit Number: <u>124.4HKCI-10</u> invironmental Managemert (ADEV) Tracking Code: <u>2012-167-COEP-CZM-M2</u>	
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By way of Joint Public Notice No. 5 consistency determination for the modification would expand the op long-term open bay thin-layer de acceptable alternative for managing pursuant to 15 CER 5 930, et s	PpL-MBUL-10 (20 My 2014) and voue later of 23 June 2014, the ABIM reasoning the USAEEY record includination of PII-MBUI-10 (April 10, April 2). The ADIM understands that the en bay the-layer disposed option from an emergency storm related action only to asis induce spoal as an alterative coption. Frovid life this coption is spoaled to add an environmentally g mantenance dredged material within the Multie Bay manyational channel.	
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This certification does not conv authorize any injury to persons local laws or regulations, and in	Alabama Department of Environmental Maragement adem.alabama.gav	
be construed as acquiescence b Contact the Mobile-Coastal offic this metter.	14C0 Colliseum Bird. 361:00-24C0	
Sincordy,	June 39, 2014 Mr. Curtis Filkels U.S. Amy Corps of Eliginoors P. O. Box 2288 Mobile, AJ, 8628-9001	
Steven O. Jenkins, Chief Field Operations Division SO3/jsb/cap File: CZCERT	RE: State of Albama Claam Water AL (CMA) 4-6010 Water Qoalt Ortif calam Mark Control (Control (Contro	12
Enclosure(s): Modification No.	Dear Mr. Flakes:	
E-copy: Larry Parson, U.S. 4 Michael Malsom, U.S. Rosemary Hall, USE Josh Rowell, USFWS Mark Thompson, NH Carl Ferraro, ADCN3	By way of Jonn Packie Kolica Na. PEI4-MHOL-10 (20 May 2014), the AIMP provide the USACES request for Quarkie Certrification for the second conditations to PEI/40-106 (koil 10, 2021). The ADMP understand notification would expand the open bey this hyper dispatal option from an emergency storm related actions increated the particular storage and an advertarial exponent relation actions in the source of a storage and a exceptible attemative for manufaging multitational dosport franchism the Mole Bay rangetions Oranit. This letter agreement confliction to the activities associated with this requested modification with not wide the activities associated with the storaget modification of which with not wide the activities associated with the franchism demoficient of which with not wide the activities associated with the storaget modification with not wide the advection associated with the storaget modification within the Work of the advection associated with the request modification of the advection associated with the storaget modification within the Work of the advection associated with the request modification and the request modification of the advection associated with the request modification of the advection asso	WA § 401(a that the pr only to also an environm
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3654 Dauphin Street, Suit Mobile, AL 36808 (255) 304 1576



# **In-Bay Placement**



- Alternating Site Use
- GPS Tracking System
- Material Placement on a 6 year cycle







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## **Placement Barge**



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# Impact to Navigation



- \$5-7/CY prior thin-layer permit
- \$2-3/CY with thin-layer permit
- Reduced budget request approx. \$6M/YR
- Gain flexibility to shop the dredge market
- Greater channel reliability
- Consistent customer relations



## **Culture Shift**



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### IWG proved that inherited perspectives need to be replaced with scientific facts

 Saving dredging dollars doesn't always come at the expense of environmental stewardship



- Bucket 2 Funded Priority List --\$2.5M
- RSM study to explore filling of **Oyster Holes in Bay**



S.ARMY

### **Keeping Our Commitments**











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