

ITR Review of ERDC WorkPlan

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WEST BAY SEDIMENT DIVERSION STUDY

- Purpose: To examine whether or not the West Bay Diversion is inducing shoaling in the Pilottown Anchorage Area and in the navigation channel of the Mississippi River
- Tasks: Data Collection; Geomorphic Assessment; One Dimensional Modeling; Multi-Dimensional Modeling
- Duration: 6 months with anticipated extension to 12 months

THE OVERARCHING ISSUE

- Flow Diversions are Known to Have Potential to Induce Downstream Shoaling
- Cost-Sharing Agreement Between USACE and State of LA for Maintaining Eastern-Most PAA and Access Strip to Navigation Channel
- Costs may Need to be Apportioned if Project to exist for Entire 20-Yr Life

Agreement Between Corps and State of Louisiana

“Below the conveyance channel, the anchorage and access areas shall be maintained at the depths existing at the time the Phase One interim conveyance channel is constructed. Above the cut, three 45-ft deep by 1,500-ft long anchorage berths shall be constructed and/or maintained.”

***West Bay Diversion Under Construction:
Completed in November 2003***



**West
Bay**

**Mississippi
River**

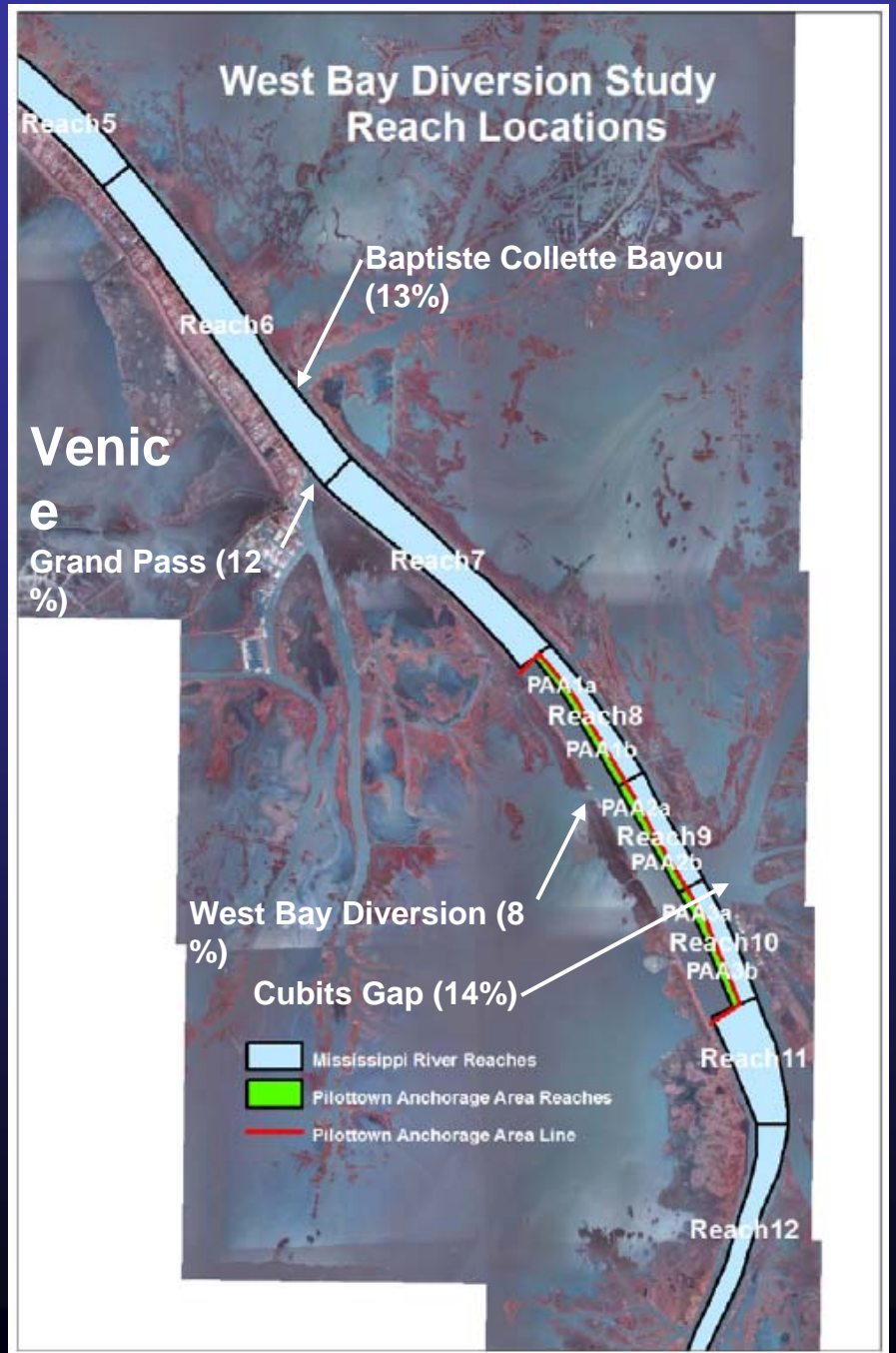
ROLE OF INDEPENDENT TECHNICAL REVIEW

- To provide over-the-shoulder academic review resulting in Mid-Point Report and Final In-Depth Review, specifically...
- To critique the four primary tasks (data collection, geomorphic assessment, 1-D modeling, multi-D modeling) that were undertaken as part of the workplan.
- To determine whether the conclusions in the study, in particular those related to quantitative cause and effect estimates, were supported by the results, and
- To offer recommendations that could be used to finalize the 6-mo draft report as well as for the full 12 mo study.

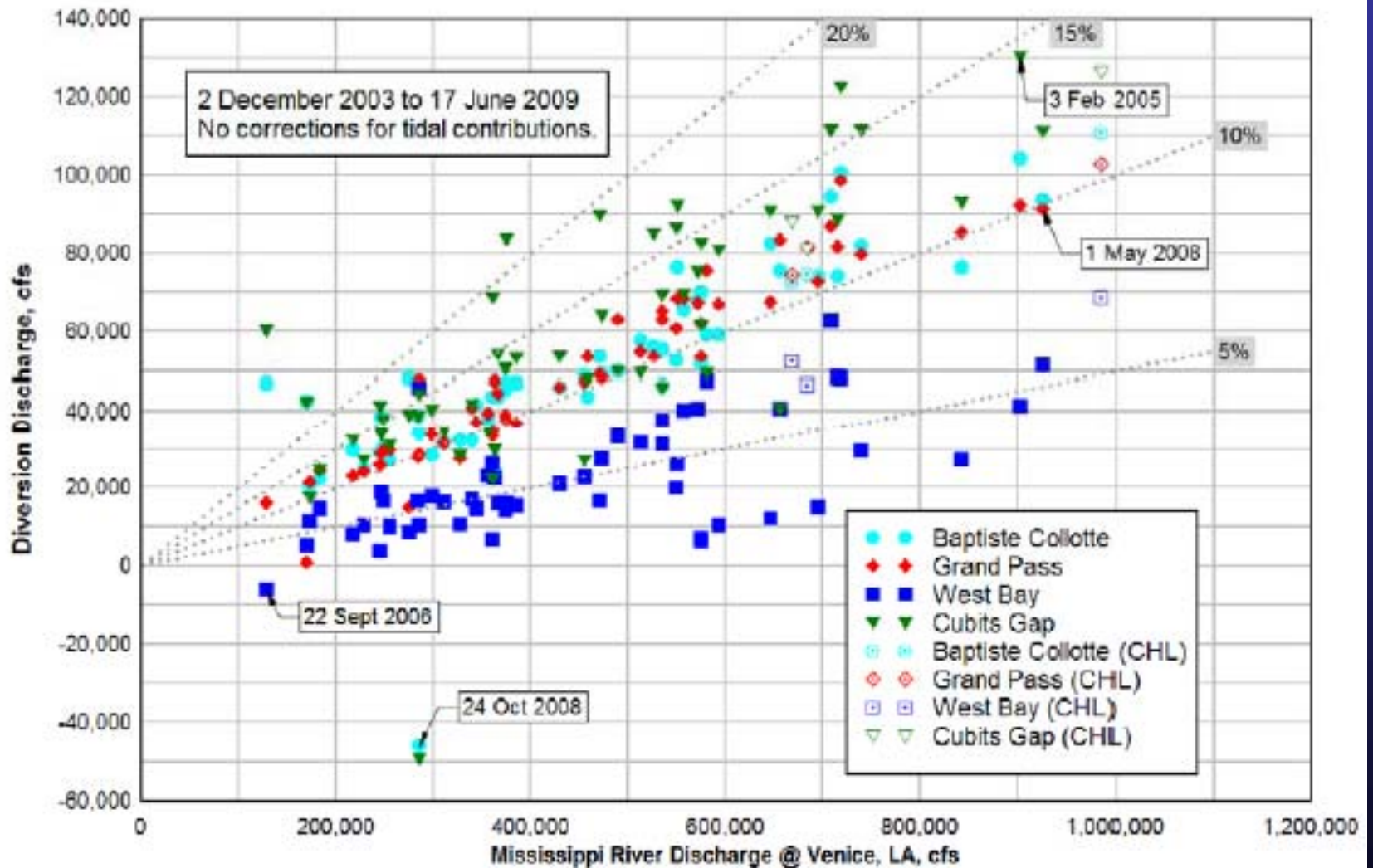
Five West Bay Issues

- **Issue A:** Is diversion inducing shoaling in the Pilottown Anchorage Area (PAA) and the Mississippi River channel. If so, what are the quantitative characteristics?
- **Issue B:** Is there a large space and longer time scale sediment transport morphology related to shoaling in the Mississippi River and areas of interest
- **Issue C:** How much water and sediment is discharged to the WBD?
- **Issue D:** How much sediment is retained in WBD receiving basin?
- **Issue E:** What is the current assessment of the ecological benefits of the WBD?

**Locations of Diversions,
Anchorage Areas,
and Proportions of
Mississippi River
Discharge Conveyed by
Each Diversion**



Water Discharges Associated With Various Diversions



Diversions in Vicinity in Head of Passes and PAA

- Baptiste Collette Bayou: RM 11.4 (13%)
- Grand Pass RM: 10.3 (12%)
- Pilottown Anchorage Area (upstream limit): RM 6.7
- West Bay Diversion: RM 4.7 (8%)
- Cubits Gap: RM 3.0 (14%)
- Pilottown Anchorage Area (downstream limit): RM 1.5

DATA COLLECTION

- Foundation for Modeling
 - Improve Definition of Boundary Conditions
 - Used for Calibration and Verification
- Types of Data
 - Bathymetric Base Map
 - 3-D Velocity Field
 - Suspended Sediment Concentration & Type
 - Salinity Measurements
 - Bottom Sediment Type

OVERVIEW OF DATA COLLECTION

- Rigorous Effort Surpassing all Previous Observational Work
- Employed State-of-the-art Instrumentation
- Small Portion of Data Used in Subsequent Analyses
- Many Opportunities for Follow-on Studies

GEOMORPHIC ASSESSMENT: TASKS

- Geometric Data Analysis
 - Cross-Section Comparisons
 - Volumetric Computations
 - Channel Pattern Analysis
- Discharge and Sediment Data Analysis
- Dredge Record Analysis
- Historic Events Analysis
- Integration of Results