



**MARINE SCIENCE &
TECHNOLOGY DIVISION**



From Science to Solutions™

**Post-Katrina Hydrographic Survey Assistance
HSRP, Houston, TX
25-26 January 2006**

The Contractor's Role

- SAIC has been conducting hydrographic surveying for NOAA continuously since 1994.
- As an adjunct capability, in partnership with NOAA, the contracted surveying company can and should be prepared to assist in responding to natural and manmade events impacting the nation's marine transportation infrastructure.
- *The operative word is "Partnership"*



Previous SAIC NOAA Hydrographic Surveys

- 1994-1995: SAIC was the first sub-contractor to conduct NOAA outsourced multibeam surveys in Long Island Sound & Martha's Vineyard
- 1998 to 1999: SAIC completed surveys of ten areas in the Approaches to Galveston, Texas
- 2000: SAIC completed surveys off the coast of North East USA in Salem, MA (Sheets A, B, and C) and Portland, ME (Sheets A and B)
- 2001: SAIC completed surveys of the Lower Delaware River and Delaware Bay 4 Sheets A, B, C, D
- 2002 to 2004: SAIC completed surveys of the Mid-Atlantic Corridor, Coastal New Jersey from Cape May to Holgate 7 sheets A,B,C,D,E,F,G
- 2004 Survey Services (AKA Time Charter) in Alaska and United Nations Convention on the Law of the Sea (UNCLOS) Eastern US Coast

2005 NOAA Survey Operations

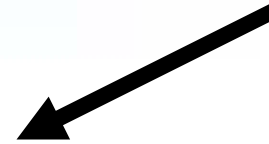
- Mid Atlantic Corridor Coast of New Jersey

- Sheet H Registry Number H11455
- Sheet J Registry Number H11456
- Sheet K Registry Number H11495

- Survey Services (AKA Time Charter)

- Sheet M Registry Number H11415
- Sheet N Registry Number H11468
- Sheet J (West) Registry Number H11290
- Sheet J (East) Registry Number H11475
- Sheet G Registry Number H11288
- Sheet E Registry Number H11286

With Rita on the way...



- Katrina Rapid Response

- Gulf of Maine Mapping Initiative

- United Nations Convention on the Law of the Sea (UNCLOS)

The R/V DAVIDSON



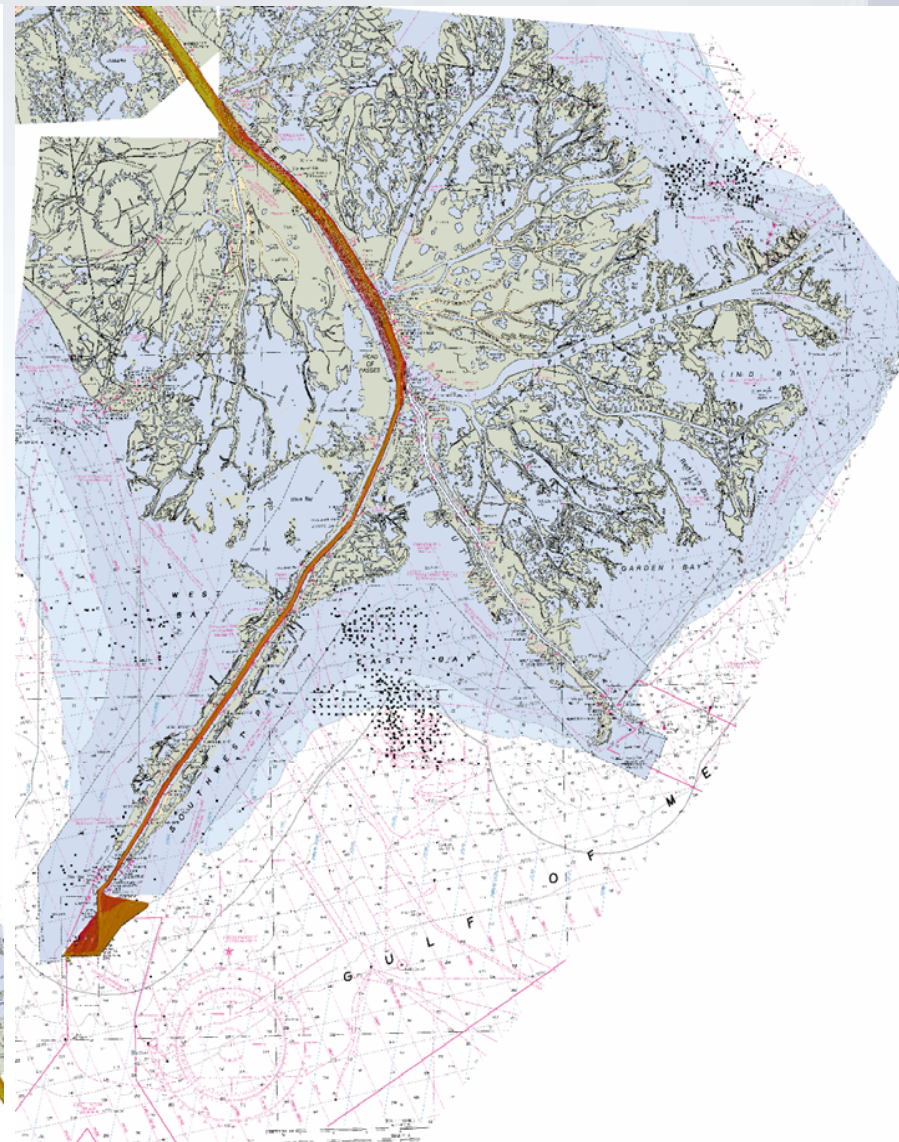
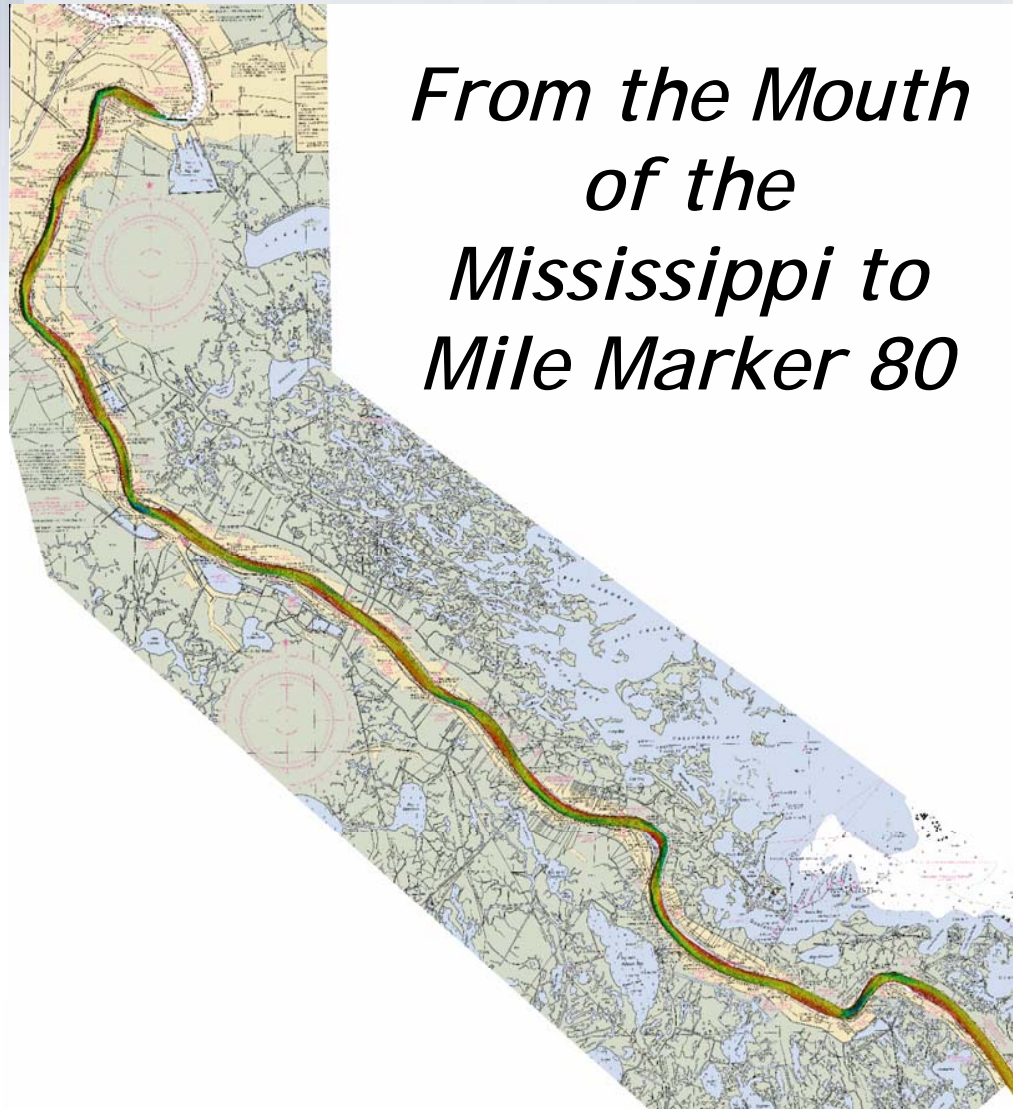
Time Charter - Gulf of Mexico

Survey Systems Overview

- Main Vessel: *R/V Davidson (24 hour operations)*
1 Supervisor
7 Equipment Operators and Data Processors
- Launches: *R/V R-2 (12 hour operations)*
R/V D-2
2 Equipment Operators Per Launch
- Positioning: DGPS using a POS/MV
- Multibeam: RESON 8101 sonar
RESON 8111 sonar
RESON 8125 sonar
- Singlebeam: RESON/Navisound 515 sonar
Ross 875
- Side Scan: Klein System 3000
Klein System 5500
- Data Acquisition: SAIC ISS2000 and Klein Sonar Pro TM
- Data Processing: SAIC SABER and Triton ISIS Sonar TM

Katrina Rapid Response

*From the Mouth
of the
Mississippi to
Mile Marker 80*



The Timeline:

- June 2004-September 3, 2005: under contract to provide survey services on a GFE vessel and launches, for survey in Alaska and GOM (Timecharter)
- Late August, 2005: Hurricane Katrina passage and R/V DAVIDSON diverted to First Response survey of SW pass of the Mississippi River by NOAA.
- August 30, 2005: SAIC provides a budgetary day rate at NOAA's request for "up to 2 weeks" of post-hurricane clearance survey in the GOM.
- September 2, 2005: SAIC receives Task Order 6, for "Emergency Hydrographic Surveying and Related Support Services for the Disaster Relief Efforts in the Wake of Hurricane Katrina." The TO authorizes SAIC to begin performance with a maximum limitation of government liability. The proposal was based on established rates set forth in the basic contract (Anywhere...) and was due within 30 days. UCA received.
- September 17-18: SAIC completes all obligations under the UCA and the vessel is in the Port of Galveston, TX, as Hurricane Rita bears down, to commence demobilization under the Timecharter contract. Vessel reverted to MSC charter at midnight, 17 September 2005. All equipment and personnel leave the afternoon and evening prior to Hurricane Rita's arrival, and the vessel clears Galveston for safety out at sea.
- September 28, 2005: SAIC's proposal submitted to NOAA Contracts.
- November 1, 2005: TO 6 is modified to definitize the FFP contract.

Pricing

- As the scope was nearly identical to the Timecharter contract, SAIC proposed to base all pricing on those resource elements with the addition of the vessel charter and associated costs. Resource rates were in accordance with the "Anywhere in the US Except Alaska" hydrographic survey contract established rates.
- Due to the nature of the tasking, SAIC made a decision to not charge fee on the survey vessel and associated services.

Survey Challenges Encountered

- Sunken barges, detached &/or submerged dock debris, large trees, miscellaneous floating debris
- Channel walls in the shallower reaches
 - Endangerment of sidescan and multibeam sonar equipment
 - Increased proximity to hazardous shoreline debris
- Rapid bottom transition from normal channel depth (>35m) to channel walls(<6m)
- Only permitted to survey during daylight hours

Katrina Rapid Response

Damage to Navigational Aids



Hazardous Obstructions

Data Management Challenges

- Fast-tracking data turnover (overnight) to NOAA to provide USCG & USACOE positional data for major obstructions.
- Request for 6m curve definition along channel walls:
 - Excessive noise near walls and shallows created challenges interpreting sonar data
- Acquisition of sound velocity profiles:
 - Mississippi River was extremely polluted; profiles were not consistently reliable

Lessons Learned

- Communications:
 - For the Timecharter program, we equipped both the ship and the two launches with satellite telephone systems. For the launches, this was done as a safety consideration—especially in Alaskan waters. This decision proved to be a vitally important one in the Katrina response effort, as cell coverage was poor-to-nonexistent in the Mississippi River after passage of the hurricane. Satellite communications allowed the launches to work their way up river ahead of the ship, out of normal VHF radio range. As the launches were literally feeling their way up the river, this was a vital safety concern.
 - Communication between government agencies was subject of much attention:
 - NOAA, U.S. Army Corps. of Engineers, USCG
 - Lead Agency required, with comms plan

Lessons Learned

- Extensive damage to navigational aids pointed out importance of local, human knowledge.
 - River pilots were onboard 24/7.
 - Onboard pilot was important for immediate relay of obstruction positions on/to the chart.
 - USCG was extremely supportive of survey operations.
- Survey goals:
 - Onboard mission planning was developed somewhat ad hoc—not surprisingly given the circumstances.
 - Consider having NRT as Operations Director for overall regional effort.

Summary

- Survey Backlog *and* Timecharter contract language/SOW should allow latitude to do this type of response activity.
- A sound basis of experience—the partnership—is necessary for emergent tasking to occur smoothly. A catastrophe is not the time to learn each other's methodologies and needs.
- Hurricane Katrina and Rita showed graphically how the nation's maritime infrastructure **MUST** be continuously improved and immediately acted upon in case of damage. The economic impact (in this case, gas, oil and cotton prices) demonstrates that federal and state funding for these services has a huge downstream benefit to consumers nationwide.
- Clearly, NOAA needs increased funding for Survey Backlog in order to meet normal and emergent tasking. With the 2005 hurricane season there is little doubt in the hydrographic community that much of the GOM needs update/resurvey. In addition the normal National Survey Plan requirements militate towards increased funding by Congress. The Survey Backlog line item is below the funding noise level, but has a huge impact.
- NOAA must remain the national experts—to this end, they must retain a fleet with sufficient at-sea billets to hone their skills. They must be "the Pros from Dover." However, on the flip side, they need to continue to embrace the contracting community and forge the partnership.

Fly through

