



US Army Corps  
of Engineers®

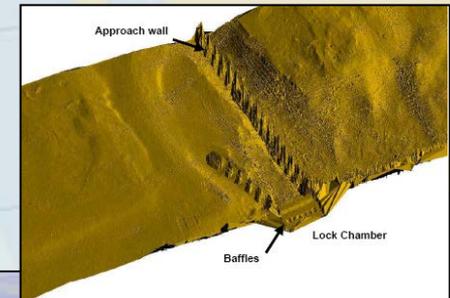
# Hydrographic Surveying





## Dredging Industry Hydro Survey Issues

- **May 26, 2005: Dredging contractors meet with HQ to discuss problems with hydro survey practices in the districts;**
  - Six contractors and DCA represented,
  - Concerns voiced over non-standard, ambiguous, and incorrect hydro survey practices in support of dredging among Corps offices, with both in-house surveys and contract specifications.
  
- **Issues paper drafted by industry, April 2006;**
  - Ready survey crews
  - EM 1110-2-1003 compliance
  - Timeliness
  - Multibeam use and application
  - Project acceptance
  - Regionalization
  - Use of remote tide gages



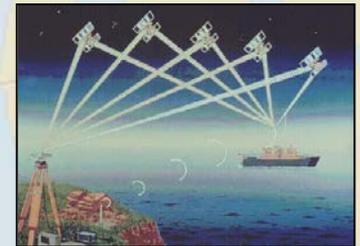


# Hydrographic Surveying



## Hydro Survey Community of Practice

- Formed Dec, 2004, with a workshop that included 23 districts;
  - Lead – Ray Williams, NAO
  - Co-Lead – Tim Maynard, NAE
- HSCP promotes information exchange among practitioners, training and professional development, recognition within PDTs, coordination of services, and sound policies and practices
- Business conducted mostly through email and online collaboration, with occasional dedicated or collocated meetings;
  - Biennial Geospatial Symposium,
  - Annual NAD Multi-beam Users Group,
  - HYPACK Annual Training Conference,
  - Biennial U.S. Hydrographic Conference.
- *Dialogue with dredging and survey contractors sought*





# Hydrographic Surveying



## Ready Survey Crews

**Adequate and properly trained personnel needed for timely, accurate, valid and defensible surveys,**

### Needs:

- ***Proper Training*** – PROSPECT Course, HYPACK Annual Conference, Univ of So Miss, Univ of NH, Univ of NB, equipment vendors, THSoA forums
- **Additional levels of PROSPECT Course; i.e Hydro Survey I, II, III**
- **Sufficient number of personnel needed, depending on workload, complexity of systems, and geographic area covered**

### Issue – Contract vs In-house services; *in-house capability needed!*

- **Local knowledge of waterway conditions; shoaling patterns, hydraulic behavior, etc; needed for responsive and fast surveys,**
- **In-house crews can better respond to unpredictable conditions,**
- **Third-party payment surveys; “fox guarding the henhouse?”**
- **Contract services not always cheaper!**



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## EM 1110-2-1003 Compliance

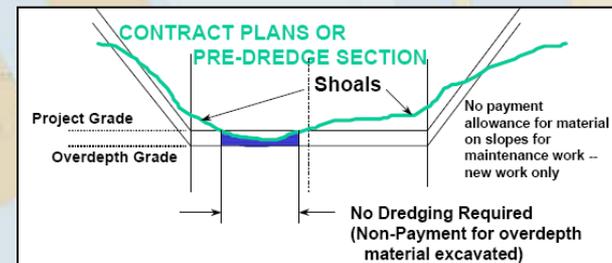
**Project managers, contracts, in-house crews must comply; contracts must specify the appropriate sections and details, not just “follow the EM.”**

### Needs:

- Project Managers and CORs should attend PROSPECT Course,
- Hydro survey personnel must be included in design and pre-construction meetings, bid selections for survey services, and after-action reviews

**Issue – Dredging industry wishes to be involved in changes or updates to the EM**

↪ **An EM update workshop with HSCP and industry is being pursued at the HSCP meeting in Nov 06 or the 2007 U.S. Hydro Conference**





# Hydrographic Surveying



## Timeliness of Surveys

**Payment and acceptance surveys must be completed promptly to avoid costly waiting periods of dredging equipment and crews.**

**Issues:** Corps surveyors believe that, in some cases, the industry is too demanding with timelines; and in other situations, are unable to process data more quickly;

- more voluminous and complex multi-beam data requires more processing,
- personnel who process data sometimes not adequately trained,
- vacancies and inadequate staff significantly increase survey and processing time,
- multiple layers of review can increase time,
- some delays unpredictable and unavoidable, such as weather.

**Possible resolution:** Discussions between industry and HSCP on technical and procedural issues.



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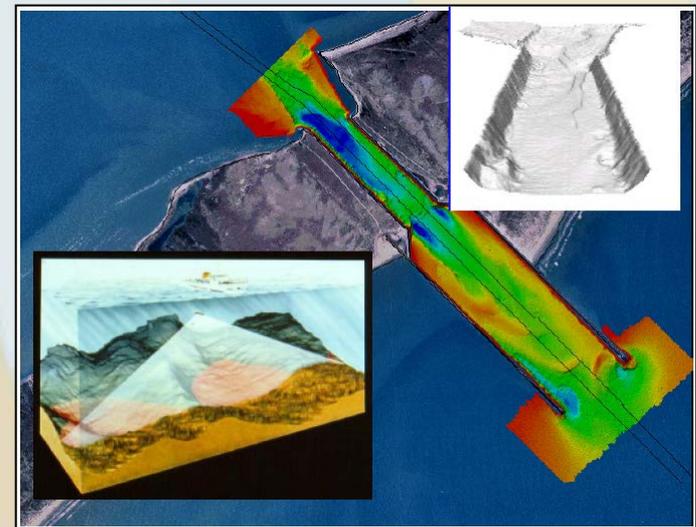


## Multi-Beam Surveys

**Very sophisticated and complex survey tool producing total bottom coverage; should be used for payment surveys, shoal or strike detection; should not be used on shallow-draft projects.**

### Needs:

- specialized training for operators; PROSPECT Course not sufficient,
- consistent application according to type of waterway and survey purpose,
- should consider use of multi-transducer systems where multi-beam is not appropriate but full coverage is needed.





## Regionalization

### Potential:

**Advantages; less cost with fewer full-service offices at each district, more consistency in contracting and field procedures.**

**Disadvantages; more layers of review and longer data delivery, less local expert knowledge.**

### “Regionalization” Successes:

- **LRD – Huntington does all surveys for LRH & LRP; river conditions are similar, although arrangement is untested in high demand conditions.**
- **NAD – districts sometimes use neighboring district crews during high demand or when neighboring crews can respond more quickly and with less cost.**
- **MVD/LRD – Multi-beam vessel and crew perform surveys for multiple districts with costs at or below contract services.**

**Need: Regionalization plans must include participation of practitioners!**



# Hydrographic Surveying



## Project Acceptance

**Survey data must be properly interpreted and used, according to accuracy obtained. Project acceptance based on one or two tenths of a foot is unreasonable.**

### Needs:

- Partners and sponsors must be educated on survey accuracy,
- Precision must be properly represented on survey plots,
- Hydro surveyors should be included in design and preconstruction meetings.

**\*\*\* The only way to way to ensure a high degree of certainty of required channel clearance is to target the dredge depth lower \*\*\***

