Hydrographic Surveying

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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
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
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!
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
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.
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!
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 ensure a high degree of certainty of required channel clearance is to target the dredge depth lower ***