



Surveying Nautical Bottom and Submerged Buried Pipelines Presentations

ERDC Dredging Operations Technical Support Program (DOTS)

U.S. ARMY CORPS OF ENGINEERS

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Response Summary:

Hydrographic surveying on waterways containing fluid mud (a.k.a. fluff), compared to a more consolidated bottom materials (e.g. sand) can pose difficulties in determining where the “bottom” actually lies. The acoustic reflection of conventional hydrographic surveying equipment used to measure water depth may not necessarily identify a depth within the fluid mud column that characterizes a nautical bottom. USACE districts also encounter problems with buried pipelines or utilities in or around navigation channels that require dredging. The major concern with this type of infrastructure is the depth of burial. Due to natural changes in the river and dredging events the river bottom relative to the burial of a submerged pipeline is not constant. Additionally, some of these pipelines are abandoned, newly installed, lack pertinent details, or it is difficult to find the pipeline’s responsible owner. USACE needs to be able to conduct preliminary surveys on these pipelines and utilities to determine the potential impact on channel dredging activities (i.e., safety of crew, dredge, and environment), or to compel the owner to update their surveys. The Hydrographic Surveying Community of Practice (Hydro Cop) requested ERDC to prepare presentations for their annual meeting to update members on state-of-art surveying methods and equipment to measure nautical depth and detect and plot submerged buried pipelines in USACE navigation channels.

Period of Performance:

15 – 26 July 2019

Benefits of the Response to the USACE Dredging/Navigation Program:

The difficulties in determining depth when fluid mud is present have hindered USACE efforts to optimize maintenance dredging in fluid mud areas. An operational definition of the nautical channel bottom in areas of fluid mud would not only reduce channel maintenance dredging costs but also increase its navigation reliability and safety. USACE needs to be able to conduct preliminary surveys on submerged buried pipelines to determine the potential impact on channel dredging activities (i.e., safety of crew, dredge, and environment), or to compel the owner to update their surveys.

Deliverable:

ERDC conducted technical literature searches and synthesized these results with that of both current and past relevant ERDC R&D to prepare presentations on state-of-art surveying methods and equipment to measure nautical depth, and detect and plot submerged buried pipelines in USACE navigation channels. These presentations were presented at the 2019 USACE Hydro Cop Meeting conducted 25 July 2019 in Jersey City, NJ.



Providing environmental and engineering technical support to the U.S. Army Corps of Engineers
Operations and Maintenance navigation and dredging missions

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