

Matrix of Mapping Technologies for Shallow Water Mapping

A primary product the 2009 **Shallow Water Mapping Workshop** is a comparative matrix, which documents the advantages, limitations, capabilities and considerations associated with the various shallow water techniques. A draft of this product was developed by the workshop steering committee prior to the workshop and comments were sought from participants and speakers during the final discussion.

The matrix that is included in these proceedings represents the workshop organizers' best efforts to

(1) incorporate comments provided by participants during the workshop's final discussion and

(2) summarize the information presented on shallow water seafloor mapping technologies.

Although the matrix includes some limited information from outside review and peer reviewed literature, it is primarily a compilation of information presented and discussed during the Shallow water mapping workshop. It is intended to serve as a working document and tool for the participating agencies, not as a comprehensive review of literature on these technologies.

Other Factors to Consider						For more info:
Technique/ Technology	Longevity of the data/interval needed for resurvey	susceptibility to fouling (green=not susceptible or n/a;	launching condition required (visibility, currents, # personnel)	How data can support education and outreach	Datums most commonly used with	Websites/References (also see references document)
Side-scan Sonar	Good longevity; long time; Depends on type of substrate, change potential	Not susceptible. Some susceptibility. Transducer faces should be cleaned appx 1/year. Yes (NOAA	Requires good launching condition. 2-3 personnel to launch/recover. Depends on type of sidescan.			http://woodshole.er.usgs.gov/operations/sfmapping/
Multibeam Sonar	Variable answers-- good longevity (MJ) vs. short - medium time (HO). Depends	No. somewhat. Yes. transducer faces should be clean appx 1/year	Yes, to launch boat. n/a (fixed mount). if the system is hull mounted no personnel are required for			http://woodshole.er.usgs.gov/operations/sfmapping/ ; http://www.reson.com/ ; www.soest.hawaii.edu/pibhmc
Interferometric	Good longevity (MJ)/short - medium time (HO). Depends on type of substrate,	no/yes? Transducer faces should be clean appx 1/year.	good - towed, none for fixed mount. if the system is hull mounted no personnel are required for launch/recovery.			woodshole.er.usgs.gov/ ; http://woodshole.er.usgs.gov/operations/sfmapping/
single beam (QTC view, RoxAnn)	Variable answers: good longevity (MJ) vs. short - medium time. Depends on	no/no/yes? transducer faces should be clean appx 1/year	good. if the system is hull mounted no personnel are required for launch/recovery. Hull mounted. Yes, to launch			http://www.csc.noaa.gov/crs/rs_apps/sensors/single_beam.htm ; woodshole.er.usgs.gov/ ; http://woodshole.er.usgs.gov/operations/sensors/rs_apps/sensors/lidar.htm ;
LiDAR (Light Detectino & Ranging Systems	Short - medium time. Depends on type of substrate, change potential	No. No.	Airborne. Yes, airport			http://www.csc.noaa.gov/crs/rs_apps/sensors/lidar.htm ; http://ccma.nos.noaa.gov/about/biogeography/ ;
Airborne Hyperspectral/Multispectral imaging	Depends on type of substrate, change potential	n/a. No.	Airborne or satellite based			
Aerial photography	Depends on type of substrate, change potential	No. No.	Airborne. Yes, airport			

Satellite photography	Depends on type of substrate, change potential	n/a. No.	None			http://www.csc.noaa.gov/benthic/mapping/techniques/sensors/satellites.htm
AUV platforms	Depends.....assume 8-12 for most AUVs. Depends on type of substrate, change potential	Possibly. No.	Yes.			www.soest.hawaii.edu/pibhmc
Laser Line Scan		Yes	Yes			http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6T8F-47PPGPB-2&_user=1346706&_rdoc=1&_f
Still photography	Depends on type of substrate, change potential	Yes	Divers, tow sleds			
Video photography	Excellent. Depends on type of substrate, change potential	yes	Divers, tow sleds			
Seismic reflection/chirp sub-bottom profiling	Long. Depends on type of substrate, change potential	no. Some.	good. Yes. Depends on type of tow body			
Vibracoring	Depends on type of substrate, change potential	Yes				
SPI (sediment profile imagery)			Boat launch required			