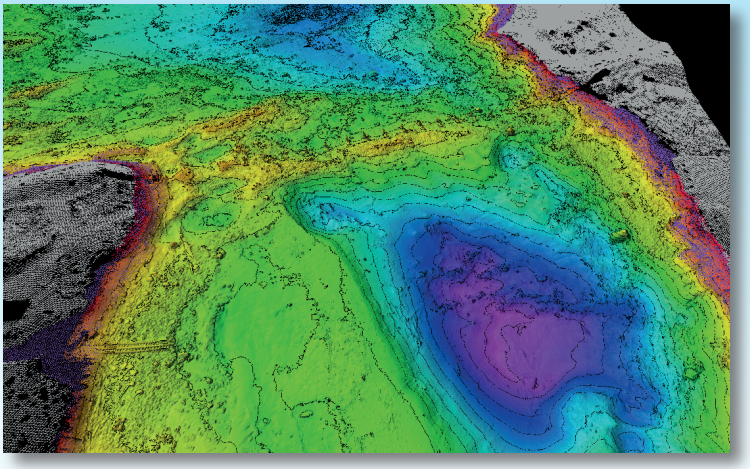
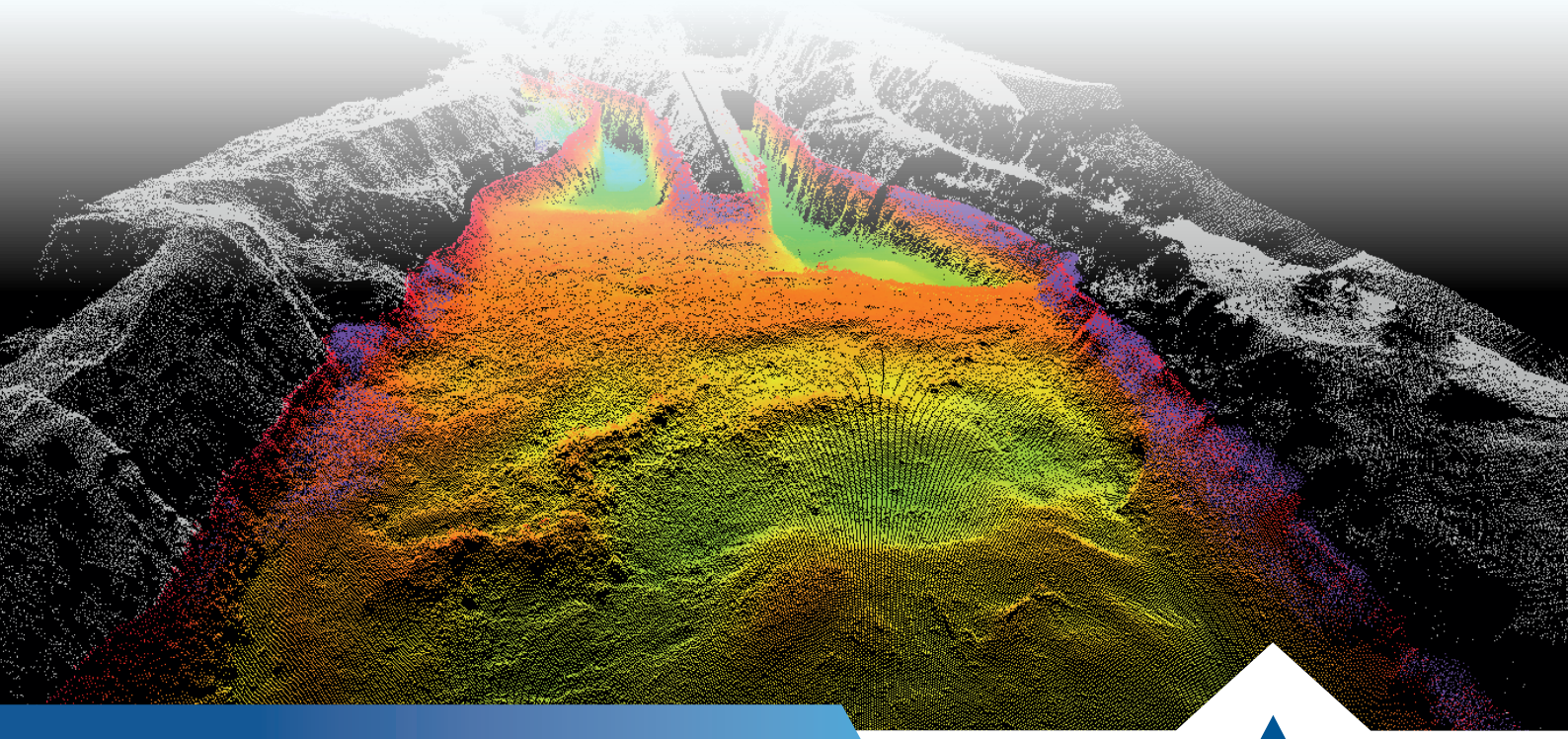
UTILIZING BATHYMETRIC LIDAR AND MBES

Multibeam echosounder (MBES) is usually used to collect the bathymetric data until a certain shallow limit is reached. For example, a five-meter depth limit can be used for MBES. Shallower depths have been traditionally surveyed by single beam echosounder (SBES) which was resulting in depth profiles only at defined distance intervals. This led to significant data gaps between the survey lines in the single beam datasets.

Bathymetric LiDAR systems have been constantly developing in terms of water column penetration, achievable point densities and object detection capabilities. In addition to bathymetric data many bathymetric LiDAR systems can also collect topographic data from coastline and islands. In addition, aerial images can be collected during the same flight. All these combined means very useful datasets for many purposes.





Bathymetric LiDAR-surveys and MBES

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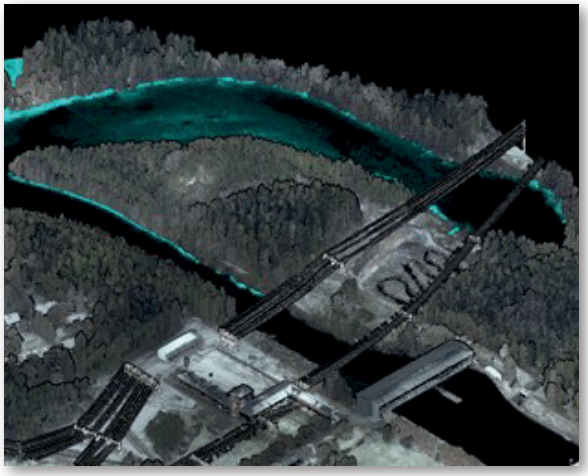
Bathymetric LiDAR technology is cost efficient

Bathymetric surveying offers a unique opportunity to efficiently capture LiDAR point clouds and images of the transitional zone comprising of shallow water and coastal land. This information provides valuable insights into environmental conditions, supports research and planning to protect vulnerable locations and aids marine navigation.



Benefits of LiDAR:

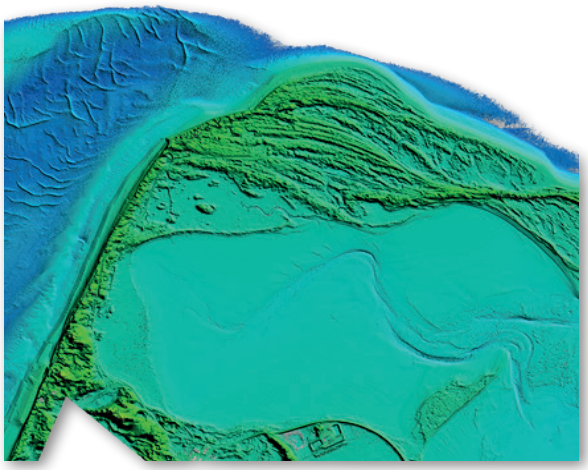
- Fast data collection
- Full density data from shallow waters (LiDAR vs. SBES)
- Minimizing the risk of bottom contacts with MBES survey vessels and/or losing MBES sensors
- Collection of data from land and shallow waters in one effort
- Data to be used in nearshore charting, coastal and environmental monitoring, river surveys and many more applications

Combining LiDAR and MBES:

When a full coverage from an area with varying depths is required, there is no better option than combining the two survey methods, LiDAR and MBES. Land and shallow waters can be efficiently covered with LiDAR whereas MBES can survey the deeper areas where LiDAR depth penetration is not sufficient.

Benefits of LiDAR + MBES:

- Efficient data collection of shallow waters with LiDAR
- LiDAR data used as a reference for MBES surveys:
    - Shallows and hazardous objects are known and survey plans can be made accordingly
    - LiDAR data can be used in the field as background maps for MBES surveys which means less stressful operating environment for the field crew
- Efficient data collection with MBES for the remaining areas



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