

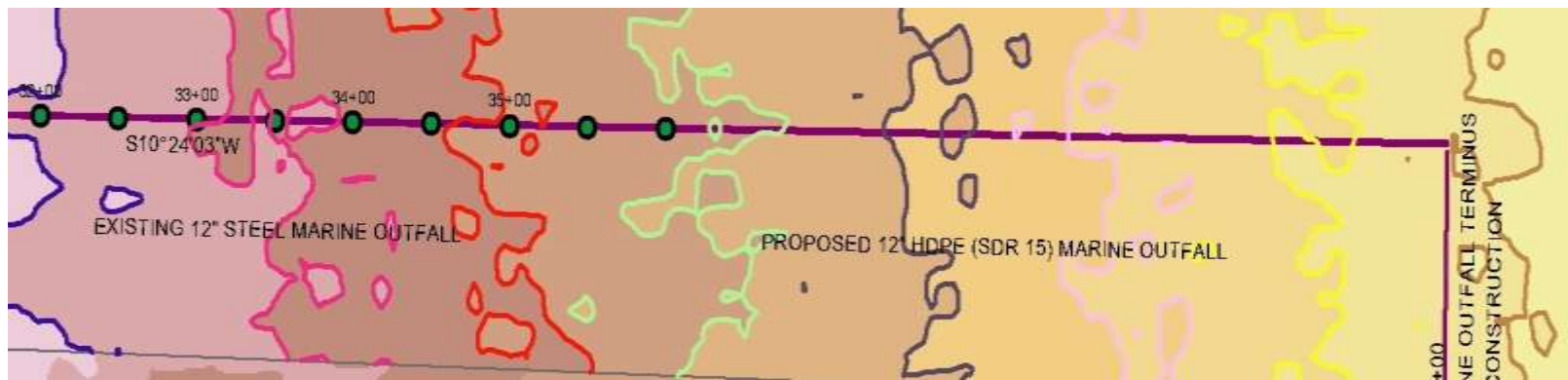


HYDROGRAPHIC SURVEYS

Hydrography is the description and analysis of physical conditions, boundaries, flow, and related characteristics of surface waters. Hydrographic surveys are conducted to map bathymetry (sounding or measuring depth) of bodies of water, measure current patterns, and characterize bottom types. Typical applications include pre- and post-dredge surveys, mapping of essential fish habitat and submerged aquatic vegetation, and modeling data for process studies.

Tenera uses a wide range of instrumentation and data processing for hydrographic surveying. Our expertise includes the use of echosounding, acoustic doppler current profiling from vessels or autonomously, sub-bottom profiling, sediment and plant classification using acoustic methods, SCUBA surveys, sediment collection and analysis, and spatial analysis using geographic information system technology (GIS).

Tenera works closely with manufacturers of scientific echosounders and bottom recognition software. We also integrate our expertise in the use of Environmental Systems Research Institute, Inc. (ESRI)'s ArcView 3.2® and ArcGIS 8.2® GIS applications, the standards for GIS mapping and spatial data analysis. Our equipment also includes a dual-frequency Imagenex sidescan sonar with Chesapeake Technology mosaicing software, a Sontek acoustic Doppler profiler with current and directional wave analysis software, and survey grade GPS equipment with centimeter accuracy using Waypoint Consulting software.



SERVICES INCLUDE:

- Precision bathymetry of coastal, bay, and inland water habitats
- Sidescan imagery
- Seabed and sub-bottom classification
- Beach and surf zone profiling
- Water current measurements and modeling
- Macroalgal and macrophyte biomass estimation and distribution
- Dredging and marine sediment bathymetry analysis
- Survey-grade GPS data collection and processing
- Baseline data acquisition and updating
- Contouring, topography and other geospatial data mapping and modeling
- Quantity computations using Triangulated Irregular Network (TIN)
- Editing, creating, and mapping new data relationships using GIS analysis

