

Results from a combined survey on submerged aquatic vegetation and bottom types in shallow coastal waters in the Strait of Gibraltar (Southern Spain)

A newly developed method for detecting plants and determining their coverage and height, adapted to the Windows® environment through BioSonics® Inc., Seattle, under the name EcoSAV™, now allows using digital echosounders as a unique tool for the assessment of entire ecosystems. The assessment of abundance and distribution of fish and plankton, submerged aquatic vegetation (SAV) and seabed classification (using BioSonics VBT software), besides bathymetric information, provides an almost complete set of data on the principal constituents of aquatic systems, available from one single field trip.



In July 2001 a small survey in the Strait of Gibraltar, Southern Spain, on the seagrass *Cymodocea nodosa*, known to be present in the area, successfully revealed patches of this phanerogam at depths of 10m, the plant height being about 15-20cm in this case. Detections have been confirmed through ground truthing.

Using a BioSonics DT 6000 208kHz, split beam digital echosounder with DGPS receiver input, vertical acoustic samples were taken at a rate of 8 ping/sec.

After post processing the raw echosounder files with BioSonics EcoSAV acoustic analysis software, the georeferenced coverage and height data of the observed vegetation was available in ASCII format for direct inclusion in a GIS system or for further analysis.

The SAV data set was complemented with an assessment of bottom types present in the area. Though this requires a second survey due to different echosounder settings, the availability of both data sets within short time – only two days were needed for this survey – and using the same equipment provides a clear advantage over current methods, such as remote sensing, aerial photography or side scan sonar, currently used in ecosystem assessments.

Results from the survey are presented, in particular possibilities of combining all acquired data into one single “ecogeographic” map.

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