



US Army Corps
of Engineers®

Engineer Research and
Development Center

Submersed Aquatic Vegetation Early Warning System (SAVEWS™)

Technology

ERDC's Environmental Laboratory developed the Submersed Aquatic Vegetation Early Warning System (SAVEWS™), a semi-automated acoustic-based measurement system that can detect and characterize submersed aquatic vegetation (SAV) while operating from a small survey boat. It uses an off-the-shelf digital echo sounder, with a narrow single-beam high-frequency transducer, and global positioning system (GPS) equipment to digitally record echo intensity and position data on a laptop PC. SAVEWS™ is used to assess ecologically important SAV (such as seagrass), to detect early infestations of nuisance aquatic plants (enabling early, more economic treatment), and to conduct bathymetric surveys of the bottom underneath dense SAV.



Problem

Aquatic vegetation is a key element in aquatic ecosystems, producing food for aquatic organisms, mammals, birds, reptiles, and amphibians, providing habitat areas for aquatic insects, young fish, adult fish, and other resident aquatic and semiaquatic organisms, and serving as a prime area for the spawning of many important fish species. In addition, aquatic vegetation serves to anchor soft sediments, stabilize underwater slopes, and remove suspended particles from the overlying water.

In some cases, aquatic plant communities may grow to excessive proportions, and can contribute to a plant nuisance problem, including flooding, impairment of commercial and recreational boat traffic, impairment of other recreational activities (e.g., swimming and fishing), and a decrease in aesthetic qualities.

For both the positive and negative qualities outlined above, it is important for individuals involved in habitat assessment to have access to tools that can monitor submersed aquatic vegetation. The SAVEWS™ technology gives habitat assessors that tool.

Expected Cost To Implement

The SAVEWS™ technology uses an off-the-shelf digital echo sounder, a narrow single-beam high-frequency transducer, and global positioning system (GPS) equipment to digitally record echo intensity and position data on a laptop computer. The patent for the SAVEWS™ processor was licensed to BioSonics, Inc. (Seattle, WA), who market it under the name EcoSAV. The entire hardware/software system is available through BioSonics. For additional information on the system, including cost information, users are referred to the BioSonics Web page, <http://www.biosonicsinc.com/>.

Benefits/Savings The SAVEWS™ technology rapidly detects and maps submersed aquatic vegetation at greater depths and lower density than can be detected by conventional aerial or satellite imaging techniques, resulting in improved data accuracy.

Status SAVEWS™ is marketed under the name EcoSAV by BioSonics (<http://www.biosonicsinc.com/>) as part of their suite of shallow-water hydroacoustic environmental characterization products. Over 30 copies of the system are in use in North America, South America, and Europe by various government and private organizations, and by universities.

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Distribution Sources SAVEWS™ is marketed under the name EcoSAV by BioSonics (<http://www.biosonicsinc.com/>) as part of their suite of shallow-water hydroacoustic environmental characterization products.

Available Documentation Documentation on the use of the SAVEWS™ technology can be found at the BioSonics, Inc. Website, <http://www.biosonicsinc.com/>.

Available Training Information on training can be found at the BioSonics Website:
<http://www.biosonicsinc.com/>.

Available Support Information on technical support can be found at the BioSonics Website:
<http://www.biosonicsinc.com/>.