
News Release

May 18, 2007

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Exotic Hydrilla Benefits Chesapeake Bay's Ecosystem

Editors: "Long-term changes in abundance and diversity of macrophyte and waterfowl populations in an estuary with exotic macrophytes and improving water quality," is available online in the May issue of [ASLO: Limnology and Oceanography](#), v 52, pages 1195-1207.

An exotic species of aquatic vegetation that was deemed a severe nuisance when it began rapidly colonizing the Potomac River, has instead benefited the watershed's ecosystem, according to a study by the U.S. Geological Survey (USGS) published in the journal *Limnology and Oceanography*. The robust exotic hydrilla first appeared and began to flourish in the fresh water reaches of the tidal Potomac River just as management investments to reduce nutrient loads from sewage treatment plants were beginning to take effect. Submerged aquatic vegetation is an important ecosystem resource for fish and waterfowl and it was feared that the expansion of hydrilla would impair the reemergence of native species, but this has not proven to be the case.

"Before and during the seventeen-year period of the study, restoration of the Potomac has focused on reducing nitrogen loads entering the river system and the Chesapeake Bay," said USGS scientist Nancy Rybicki, who with colleague Jurate Landwehr were curious how the emergence of hydrilla would affect the benefits sought for by management investments.

Shortly after it first appeared in the Potomac in 1983, hydrilla produced dense vegetation masses and, in some areas, impeded boat traffic and water sports." More significantly, it was feared that hydrilla would interfere with native vegetation, which is important for waterfowl, such as black duck, a signature species in this area.

Using information from annual field surveys and aerial photographs, Rybicki and Landwehr created a data base to document bed-by-bed which species of vegetation were found in different sections of the Potomac River system. They recorded the percentage of total coverage and biomass each species attained annually. In comparing species coverage with water quality composition, they discovered that, with the reduction of nitrogen concentration in Potomac River, hydrilla coverage expanded but so did the diversity of plant species found in the River. Hydrilla did not crowd out native species; indeed, native species increased. In addition, hydrilla is a good winter food source for waterfowl communities, which have increased significantly over this period.

"This research is the only long-term, quantitative study of aquatic plant biodiversity following the colonization of an exotic species in an estuary where millions of dollars are spent annually to reduce nutrient input and it demonstrates that exotics are not always harmful to an ecosystem," said Rybicki.

"Furthermore," Landwehr pointed out, "the methods developed for this study are transferable to any ecological assessments that need to merge remotely-sensed spatial coverage with field observations."

The findings support current federal and state management strategies to improve water clarity and reduce nutrient loads to: enhance aquatic vegetation coverage; increase waterfowl habitat; and protect biodiversity of the existing native community.

The study was conducted as part of the USGS Chesapeake Bay studies, which is providing integrated science to for effective conservation and restoration of the Bay ecosystem. The USGS is a federal partner in the Chesapeake Bay Program, the federal-state partnership to restore the Bay ecosystem. More information can be found at <http://chesapeake.usgs.gov>

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