Making Friends with a Stranger: Opportunities for Water Hyacinth Utilization in 21st Century Florida

Water hyacinth (*Eichhornia crassipes*) is widely regarded as one of the world's most problematic aquatic weeds. First introduced into the St. Johns River in the 1880s, water hyacinth rapidly spread and established nuisance populations in many Florida lakes, rivers, and canals throughout the first half of the twentieth century. The dramatic negative effects of water hyacinth overgrowth on navigation, fisheries, drainage, and other environmental attributes led to a characterization of the plant as "the green menace" and institution of a statewide management program focused on achieving efficient control. In more recent decades, aquatic plant control programs based on sustained use of chemical herbicides have effectively maintained water hyacinth populations at low levels in Florida. This success, however, is often tempered by ongoing public concerns about pulsed contaminant release, secondary algal blooms, and non-target species effects that can be associated with chemical control of aquatic plants. Moreover, a growing body of international research indicates that the same characteristics that make water hyacinth a successful invasive species – extremely high primary productivity, contaminant tolerance, and competitive ability – can be beneficially utilized for wastewater treatment, nutrient recovery and recycling, biomass energy production, and ecosystem rehabilitation. While acknowledging the advantages of maintenance control as a general control strategy, we argue that more flexible and adaptive approaches toward water hyacinth management are justified in some contexts, including manatee congregation areas, freshwater ecosystems commonly affected by harmful algal blooms, and wastewater treatment/bioenergy co-production facilities. Kings Bay/Crystal River and the lower St. Johns River are discussed as potential sites for pilot scale experiments to test the ecosystem effects and economic feasibility of alternative water hyacinth management approaches.

Key words: water hyacinth, Crystal River, St. Johns River, adaptive management

Challenges and Issues addressed:

Public health, wildlife health, ecosystem health and water resource sustainability
Nutrient enrichment of surface, ground and coastal waters
Socioeconomic impacts of water resources decisions
Public perceptions, values, and attitudes toward water issues

Authors:

Jason M. Evans – Postdoctoral Research Associate, School of Forest Resources and Conservation, University of Florida

Ann C. Wilkie – Associate Research Professor, Soil and Water Science Department, University of Florida