

# SAVANNAH HARBOR EXPANSION PROJECT

## DISSOLVED OXYGEN NEED

The Savannah River drains a basin of over 10,000 square miles, touching the states of Georgia, South Carolina and North Carolina, and Savannah Harbor is a bustling major international port. Feasibility studies have been completed to deepen the navigation channel of the harbor to allow passage of larger ships. One consequence of deepening is reduction of dissolved oxygen (D.O.) levels. However, parts of Savannah Harbor are already considered "D.O. impaired streams" due to lack of D.O. and are subject to Total Maximum Daily Load (TMDL) standards for minimum D.O. requirements.



## SEARCH FOR SOLUTION

In partnership with the Georgia Ports Authority, the U.S. EPA, U.S. Fish and Wildlife Service and the National Marine Fisheries Service, the U.S. Army Corps of Engineers began seeking solutions to the Savannah Harbor dissolved oxygen conditions. A cost-effective D.O. improvement method was needed so that the Harbor Ecosystem Restoration and Harbor Expansion projects could move forward.



Photo by U.S. Army Corps of Engineers  
Map from the Georgia Department of Transportation

## EVALUATION

Twenty-five (25) oxygen improvement techniques were evaluated, ranging from physical alterations to oxygen injection. These techniques were narrowed down based on ability to handle tidal water movement, oxygen transfer efficiency, potential interference with shipping traffic, space required to construct and operate, and power needs. Final criteria included D.O. improvement performance, reliability, capital cost, constraints, and seasonal application.

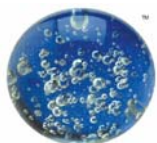


## SOLUTION

The **ECO<sub>2</sub>** "Speece Cone" SuperOxygenation System was identified as the best way to comply with TMDL D.O. standards. The next step now underway is development of feasibility level design and cost estimates for an oxygen improvement system that would mitigate for the potential effects on dissolved oxygen from a harbor deepening.

D.O. is improved at Newman Lake, Washington, by **ECO<sub>2</sub>** "Speece Cone" installed on lake bottom.

Link: <http://www.sas.usace.army.mil/shexpan/Home.htm>



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