



# Innovative Dredging Technologies – New Dredging and Placement Techniques

## Dredging Operations Environmental Research (DOER) Program

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

### Focus Area

Dredged Material Management

### Problem

This project addresses chronic dredging problems including the high cost of dredging, the undersized and overburdened U.S dredging fleet, the lack of dredged material disposal capacity, and shoaling of flood control reservoirs.

### Study Description

This study is separated into three sub-projects to address the problem set in an innovative manner. To address all the problem sets, screening criteria for Water Injection Dredging (WID) is being developed facilitate WID contracting by districts and capital investment into WID plants. To address the lack of dredged material capacity, Beneficial Use Marsh Nourishment (BUMN) construction techniques are being evaluated and developed to increase the USACE competency in marsh construction using dredged material. Also, basic research into autonomous submersible dredging is being performed to assess the feasibility of the technology to maintain navigation channels.

### Products

The products include valid screening criteria for determine the suitability of WID operations riverine, coastal, lacustrine, and reservoir environments. In addition, BUMN an assessment of and further development in BUMN construction techniques will developed. Also, basic research into the physics of autonomous and submersible dredging will be produced.

### Summary

This project aims to address new and chronic dredging problems by introducing, studying the feasibility of, and further developing new dredging vessels and construction methods. The overall goal is to reduce the cost of dredging, supplement the U.S dredge fleet with new vessel designs and vessels. Additionally, this project intends to support those who demonstrate innovation in the field of dredging such as the North Carolina State Ports Authority and the Kansas State Water Office in their efforts to demonstrate and determine the feasibility of WID.



Figure 1. WID-OSPREY showing off her jets in Wilmington Harbor, NC.

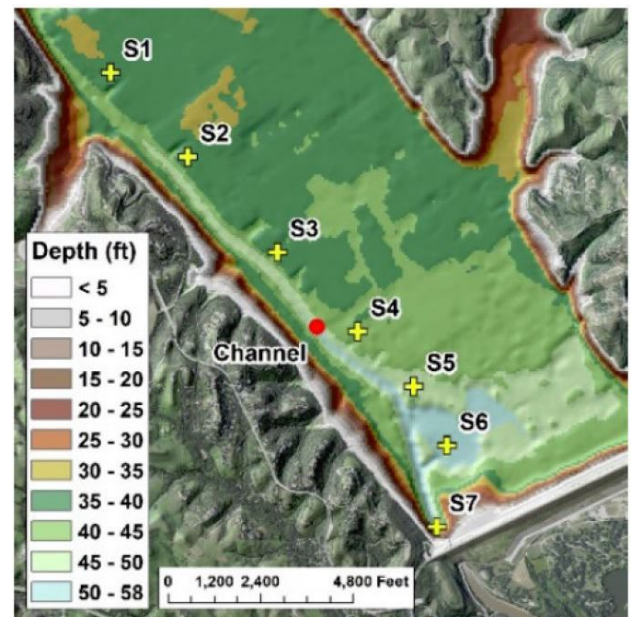


Figure 2. Tuttle Creek Reservoir bathymetry pre-WID dredging demonstration.

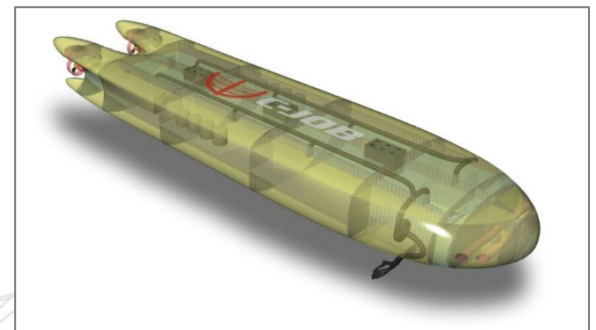


Figure 3. Conceptual model of an autonomous submersible dredger created by C-JOB naval architects.



Balancing operational and environmental initiatives and meeting complex challenges of dredging and dredged material placement in support of the navigation mission.