



# Testing Tickler Chain Efficacy for Reduction in Endangered Species Takes

Dredging Operations Environmental Research (DOER) Program

U.S. ARMY CORPS OF ENGINEERS

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## Focus Area

Environmental Resource Management

## Problem

Currently the main turtle excluder device (TED) on hopper dredges are deflectors that act like a cow catcher on train locomotives. Current draghead deflectors still are heavy and burrow through the sediment which creates stress to dredge equipment, reduces production rates, increases fuel costs, increases the carbon footprint of each project, and still entrain turtles and sturgeon. Finding an alternative TED design that enables improved dredge performance while still deterring entrainment of sea turtles and sturgeon is highly sought after by USACE, the dredging industry and resource agencies. International dredgers are switching to tickler chains (TC) as an alternative to the typical TED used in the US but there are no data showing if TC work as intended. It must be demonstrated to resource agencies that TC are as or more effective in reducing the likelihood of entrainment before they can be considered as an alternative to traditional draghead TEDs.

## Study Description

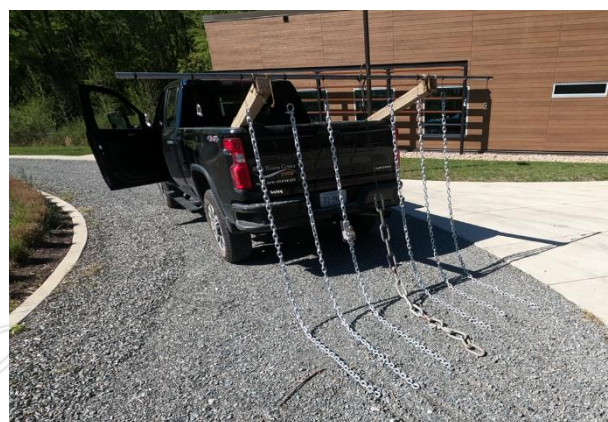
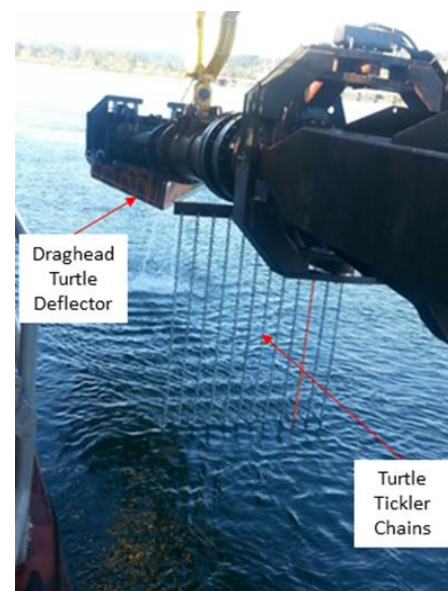
The focus of this research is to determine if TCs are an effective excluder device for sea turtles and sturgeon. ERDC will work with dredge companies to design and test TC arrays in a controlled field environment with no chance of animal mortality. This study will attempt to capture video evidence of how species of concern react when they encounter TC arrays. If evidence is collected that demonstrates TC arrays work as intended, ERDC will work with districts to get TC on dredge projects.

## Products

Products developed under this research will include: 1) methods of how to build TC arrays and record interactions with various species 2) hard data for districts and stakeholders about how sea turtles and sturgeon behave when they encounter a TC array 3) technical documents and Wiki Page sharing results 4) presentations at appropriate conferences 5) if deemed effective, document the methods of replacing draghead deflectors with TC on USACE projects 6) peer-reviewed article in an open-access journal.

## Summary

Both the dredge industry and USACE are interested in having TCs replace the draghead deflectors currently used on USACE projects. There is currently no knowledge on whether TC arrays are an effective means of protecting species of concern, mainly sea turtles, from entrainment by dragheads. Taking a proactive approach by increasing our knowledge of how species of concern react when they encounter TCs will help USACE efforts to change current deflectors with TC on dredge projects. If TC arrays do replace draghead deflectors, all of USACE will benefit from increased production rates and decreased fuel and carbon footprint.



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