



Analysis of Nourishment Hazards Using Beach Lifeguard Data

Dredging Operations Environmental Research (DOER) Program

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Focus Area

Dredged Material Management

Problem

In recent years, news reporting on hazards generated from beach nourishment projects has increased, piquing interest from stakeholders. When addressing media requests following post-nourishment drownings, USACE cites the absence of data indicating a correlation with nourishment activity. However, the United States Lifesaving Association's (USLA; the governing body of all beach lifesaving agencies in the Nation) official stance is that there are increased rip currents after nourishments. USLA developed this response from firsthand lifeguard accounts and agency-reported data, and it recommends that lifeguarding agencies should proactively adjust staffing during and after nourishments. While previous academic and industry research agrees that there is an increase in injuries due to steeper beach faces, there is no scientific consensus on the relationship between nourishments and swimmers in distress due to rip currents.

Study Description

A beach nourishment conducted during summer of 2019 at Virginia Beach, VA will be investigated for this study. Daily logs from the Virginia Beach Lifesaving Service containing timestamped locations of rescues, medical events, and lost and found children were previously digitized for preliminary analysis. Additional comments such as weather conditions, red flag presence, and street closures for the nourishment were also included. Each logged item was combined with wave and tidal conditions to analyze forcing mechanisms for rescues. Statistical analysis will be conducted to compare rescues before and after nourishment at each guarded street and compared to an updrift, non-nourished section of beach. Geospatial analysis will use pre- and post-nourishment survey data to examine rescue hotspots and morphological changes.



Products

- A manuscript will be submitted to a peer-reviewed journal detailing the methods and results of this project
- An oral presentation will be given at a national conference

Summary

This research will look at the impacts of a 2019 beach nourishment project on beach patron safety by using lifeguard daily logs. The results of this work will help District's better understand the relationship between nourishments and surf zone hazards.



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



POC: Sean P. McGill

ERDC Coastal & Hydraulics Lab • Sean.P.McGill@usace.army.mil

October 2023