



U.S. ARMY

# Cost Engineering Dredge Estimating Initiatives

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US Army Corps of Engineers



# CEDEP Updates/Initiatives

- Cost Center of Expertise (MCX), Walla Walla District, consistently updating economic factors and labor rates to keep CEDEP up to date**
- CEDEP Methodology/Deep Dive Recommendations**
  - **Add new Hopper size selection and two cutterhead size selections to better reflect industry fleet**
  - **Add Considerations for Pipeline Mobilization Items**
  - **Enhanced accessibility to Historical Records across Districts**
- CEDEP Validation**
  - **On-going effort between ERDC Dredge Innovations Group (DIG), Cost MCX, DQM, District Cost Engineers**
  - **Utilizing historical dredge records to update CEDEP IGE's to reflect actual conditions observed and compare CEDEP outputs to actual productivity achieved/project costs.**

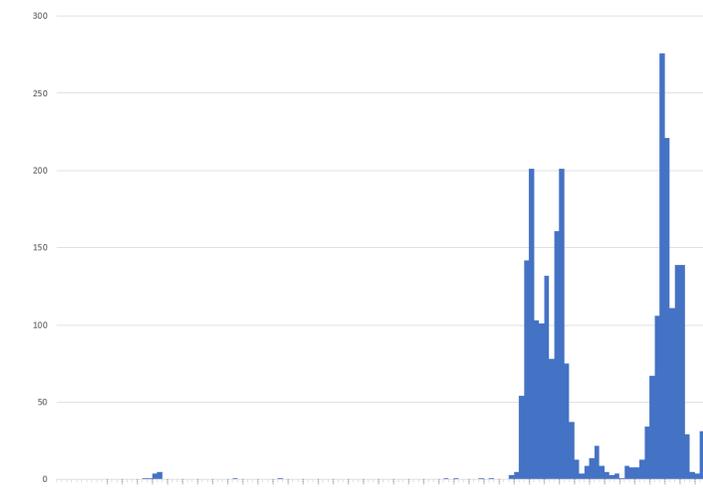
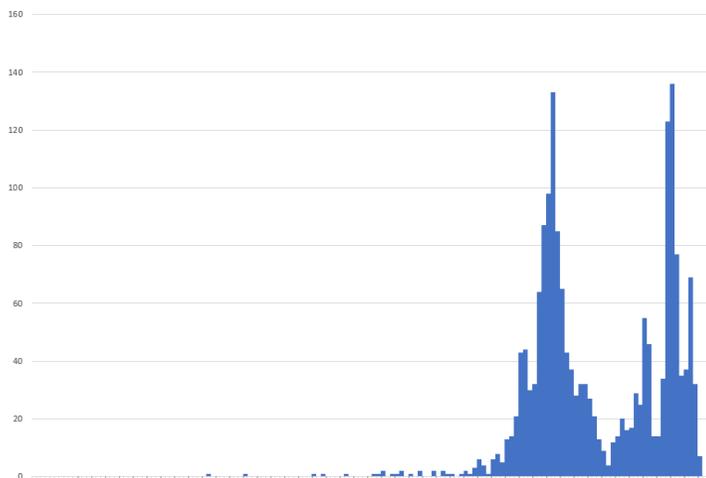
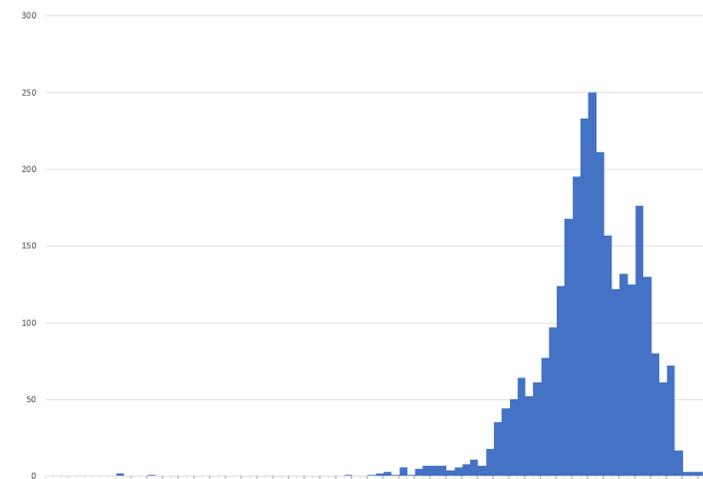
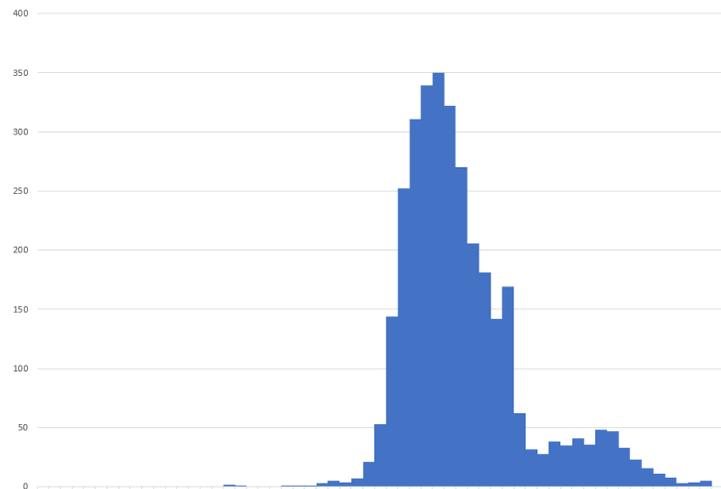
# Historic Dredge Production Data

- RMS data being utilized on a broad scale to help inform USACE of high-level productivity trends that could be used for Cost Engineering and Schedule Optimization**
- CEDEP loading assumptions and averages being validated through DQM historic hopper loading data**
- Through CEDEP validation efforts, DQM/RMS records being informally verified/compared.**

# Hopper Loading Histogram by Vessel (DQM)

\*X-Axis (Total CY) removed to preserve anonymity

- Approx. 3K+ individual cycle loadings per dredge analyzed
- Distinct loading peaks, material differences
- Using this data to inform average loading assumptions in CEDEP



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# RMS Dredging Data

- Quantity
- Type
- Location

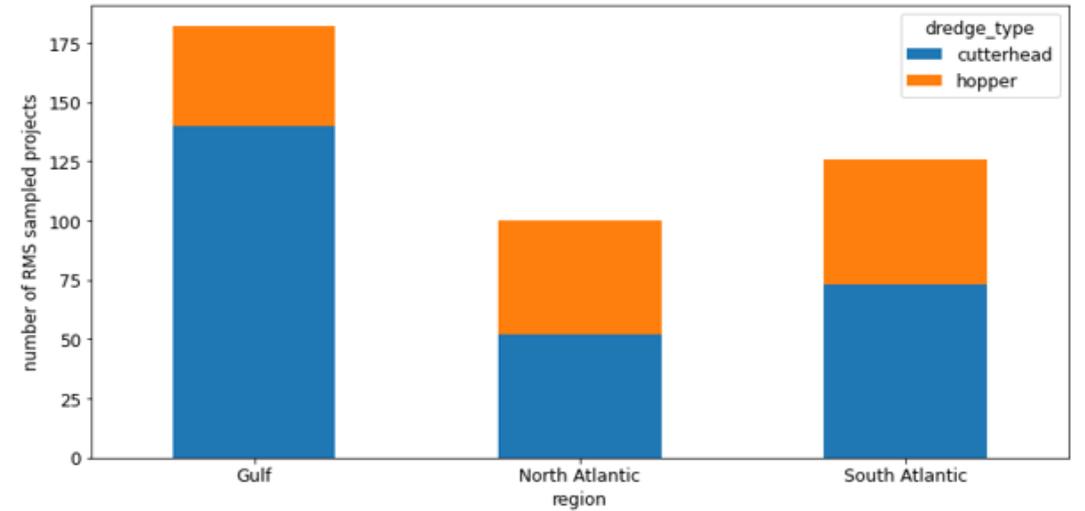


Figure 1. Number of RMS sampled projects, by region and dredge type

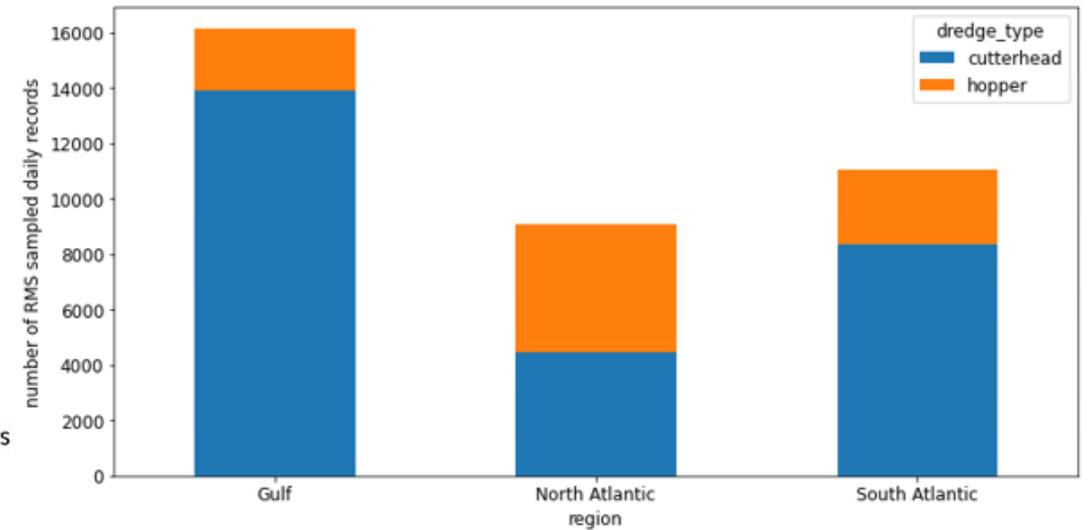


Figure 2. Number of RMS sampled daily records, by region and dredge type

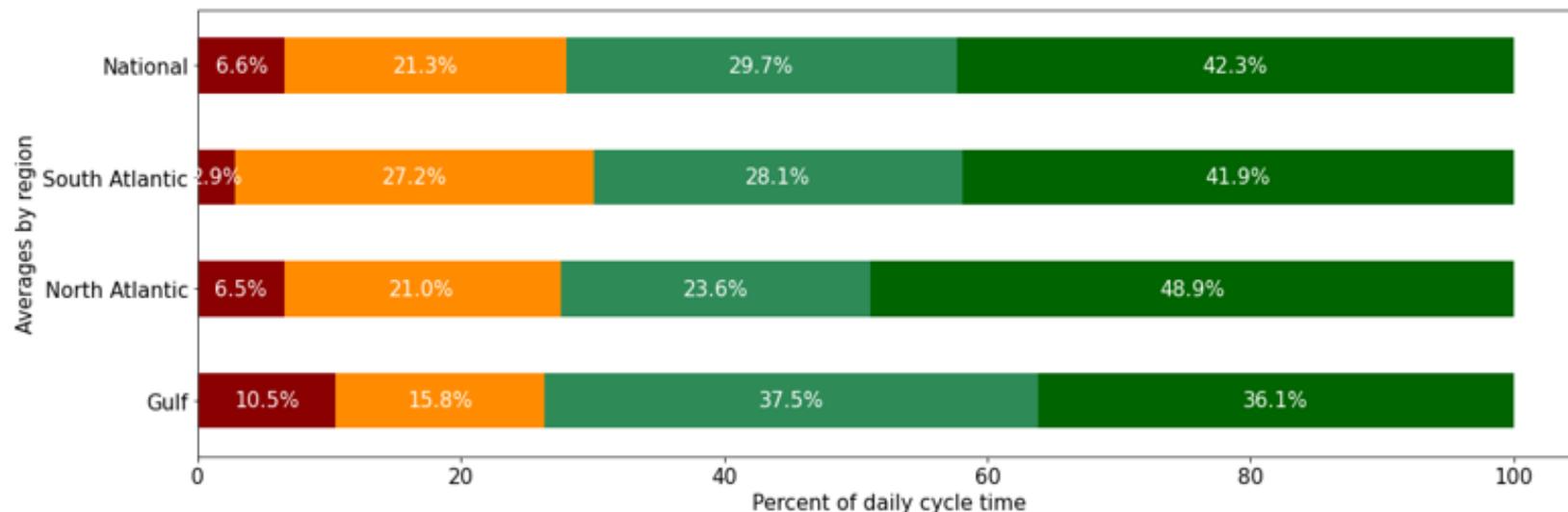
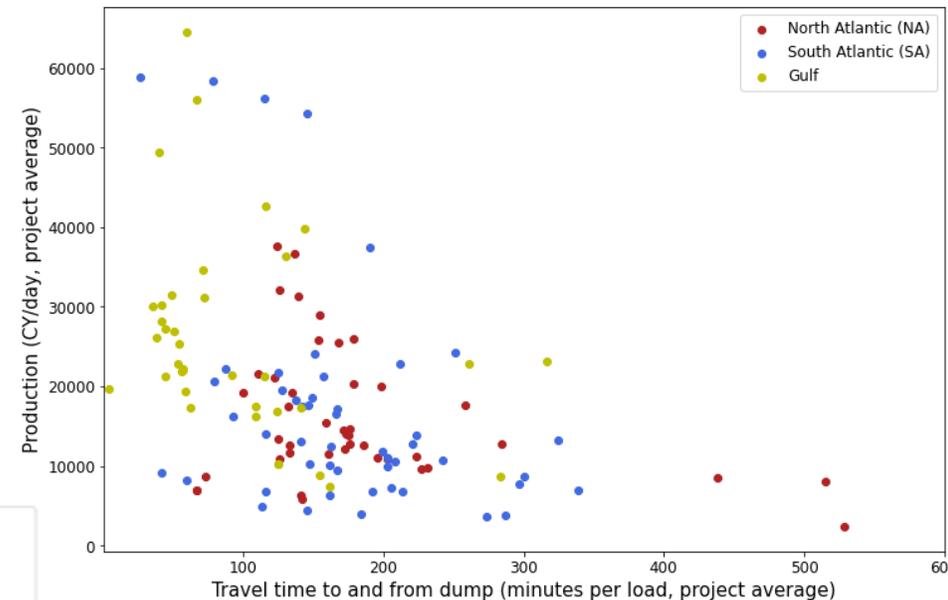
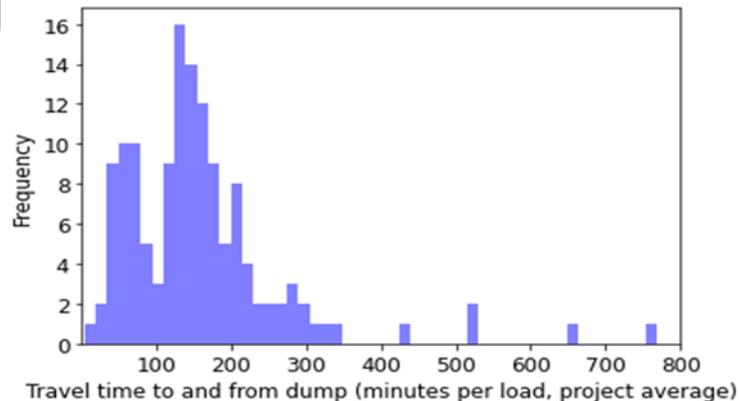
# Hopper Dredging

## Cycle Time Activities

-Long Haul Distances in the North Atlantic reflected by “Effective Time: Transport to/from Placement”

-Average travel to and from placement site between 2-3 hours, some 10+ hours!

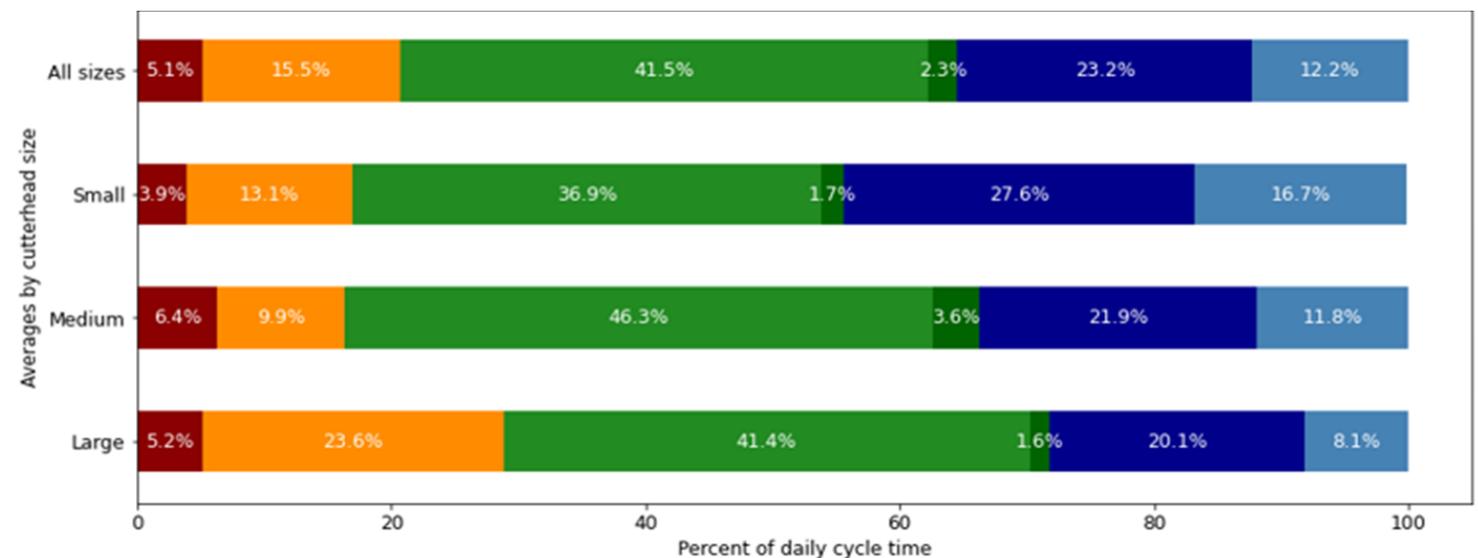
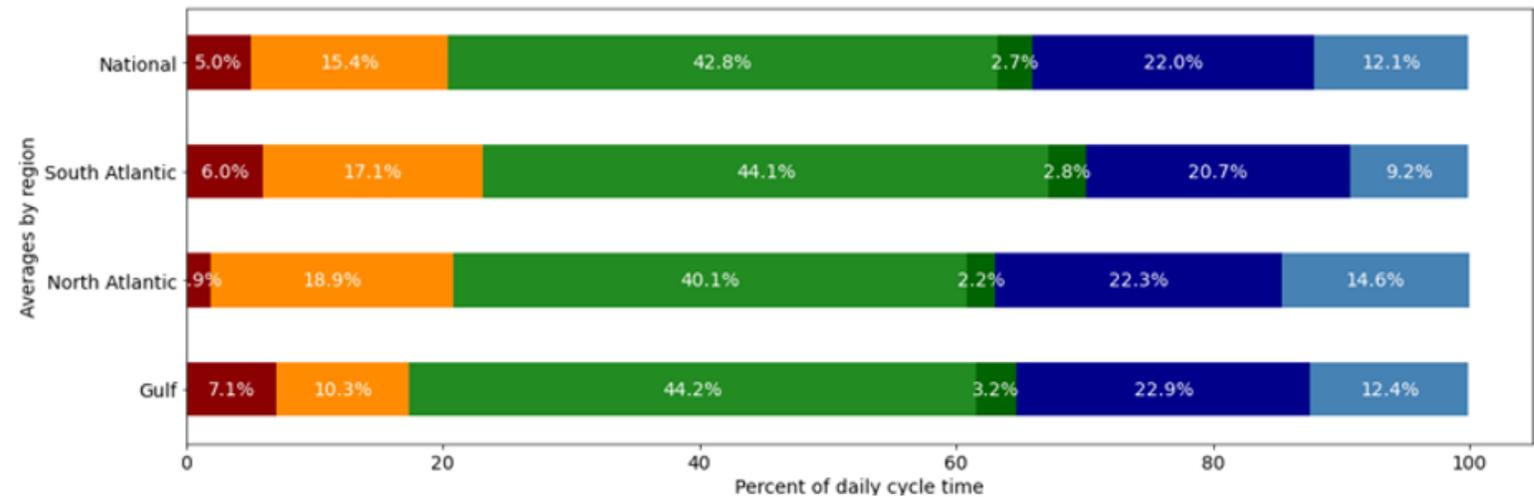
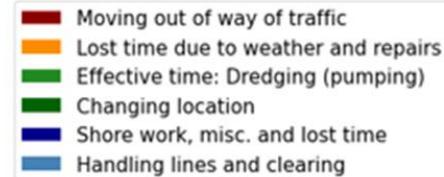
-Lost time in Gulf higher than other regions, but effective time highest



# Cutterhead Dredging

## Cycle Time Activities

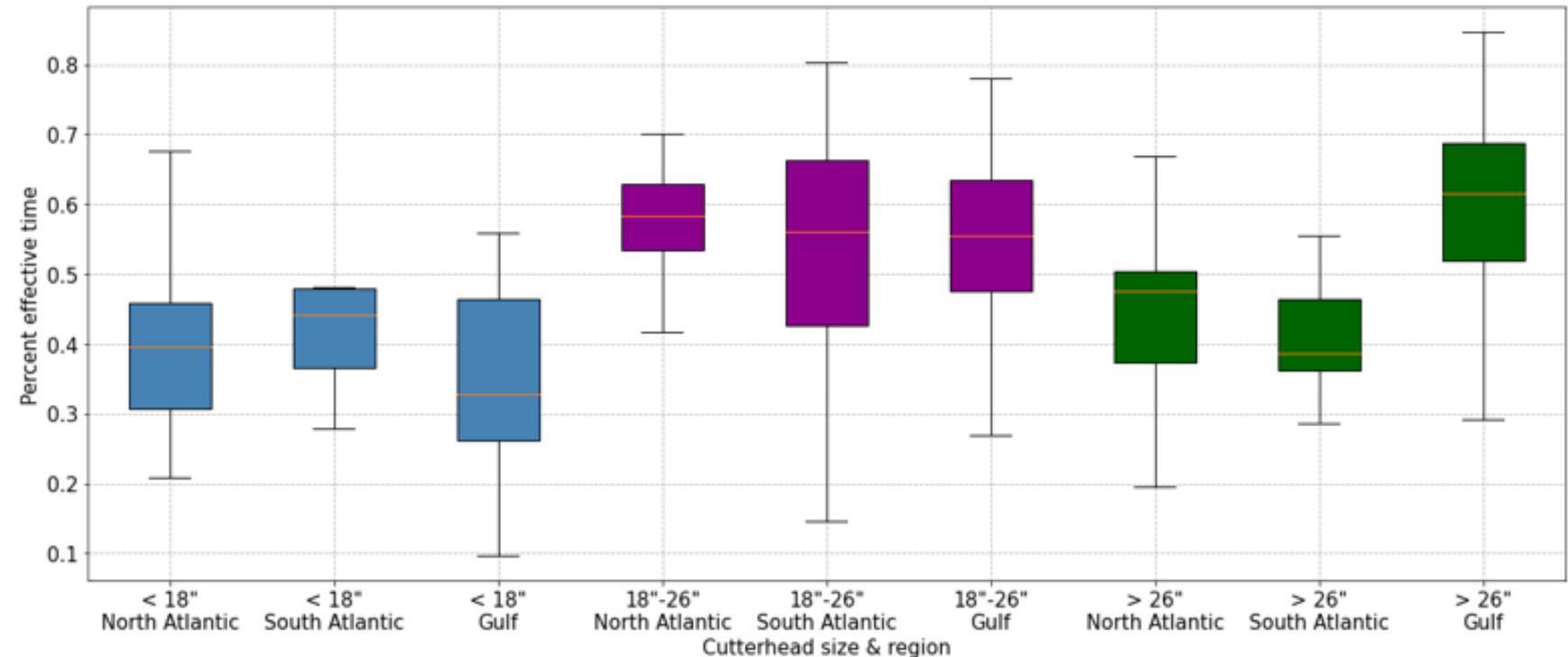
- Higher Traffic Delays in the Gulf/SA
- Seasonal analysis needed for scheduling optimization?
- Effective time consistent across all regions
- Small: <18"  
Medium: 18-26"  
Large: 27"+
- Medium class appears to be most efficient
- Lost Time significantly higher in Large Class, function of work complexity, offshore activities?



# Cutterhead Dredging

## Percent Effective Time by Size/Region

- On average, Medium Class Dredges highest % effective working time
- Large class cutterheads in Gulf achieve highest percent of effective working times of all
- Medium Class dredge % effective time standard across all regions



# Questions?



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