FEBRUARY 5 - 6 • LOS ANGELES, CA

SMART PORTS
(INFORMATION TECHNOLOGY)

Title: Calculating and Communicating the ROI on Digital Solutions

Presented By: Matthew Prumm, Seaport OPX
Zac Canody, The Port of Virginia

AAPA

DYNAMIC MOORING ANALYSIS

THE PORT OF VIRGINIA

CONNECTING THE COMMONWEALTH TO THE GLOBAL MARKET

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VPA Director, Engineering
February 5th, 2019

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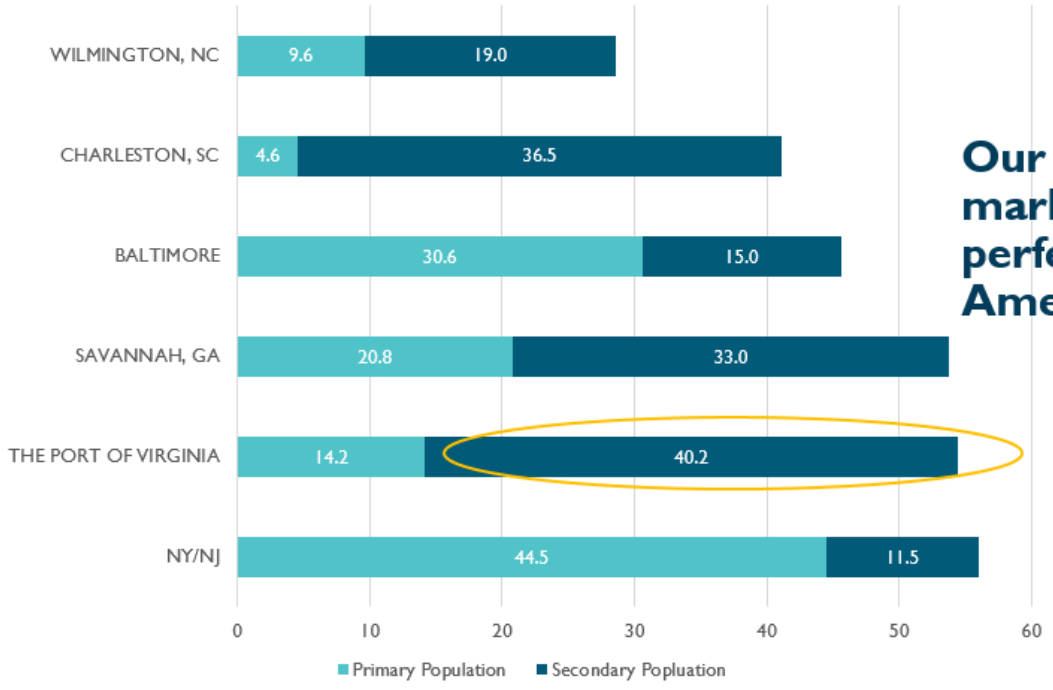
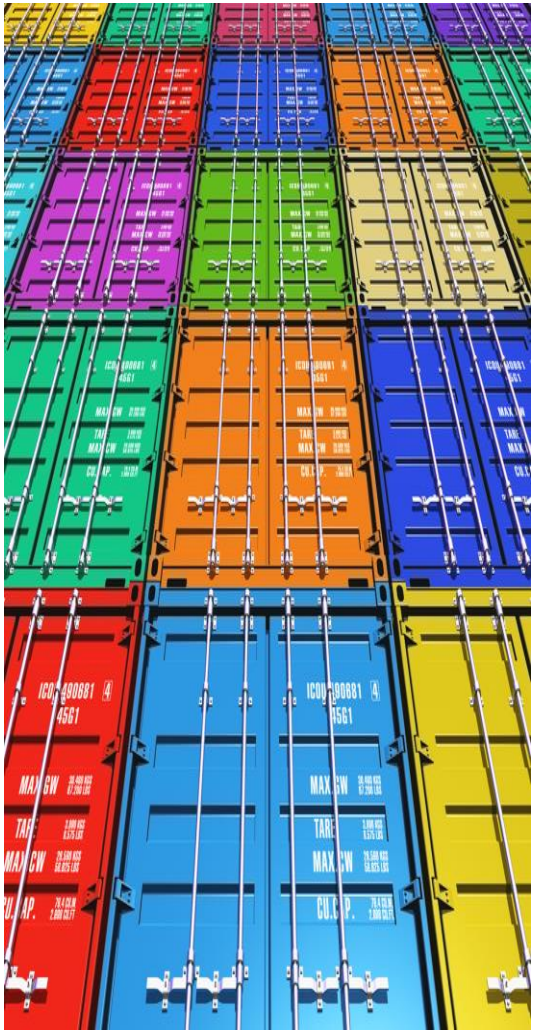
SeaportOPX

Positioned To Move The Country's Cargo



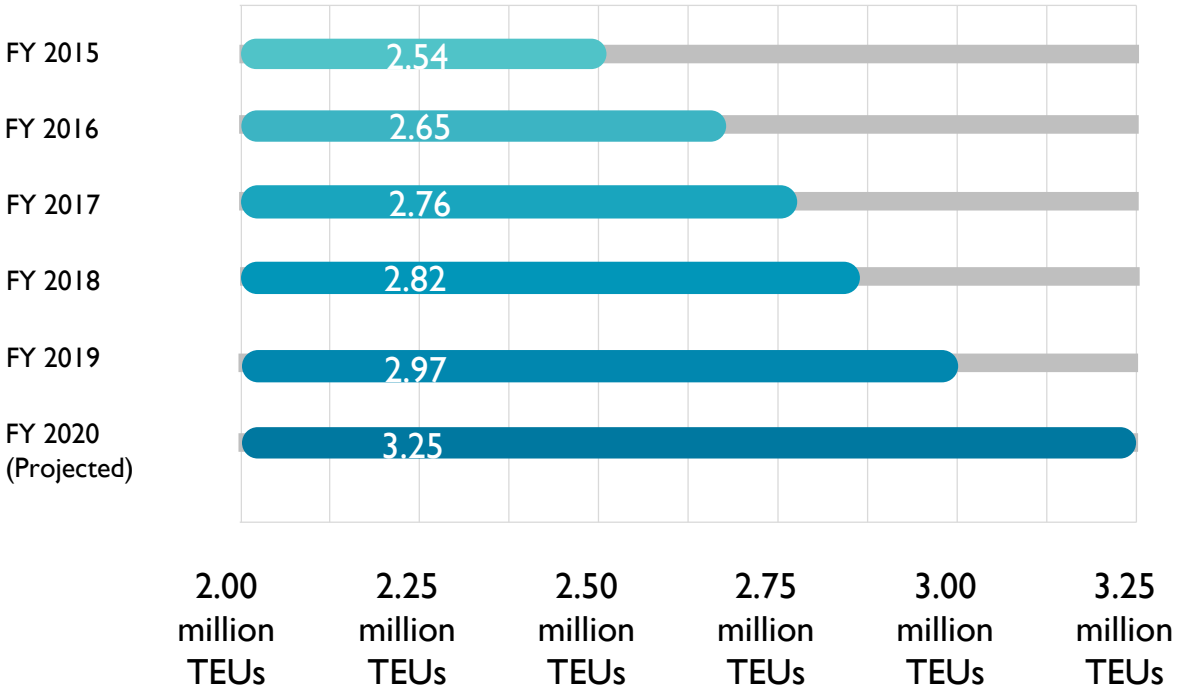
Our location and primary market size positions us perfectly to serve the American Heartland.

Source: Colliers, population categories defined by R K Johns



RECORD-SETTING VOLUMES

We are handling more than 400,000 TEUs more than we did in FY2015 – a 15% increase driven by our infrastructure investments.



BUILDING THE CAPACITY FOR GREATNESS

55’ Deepening Project ($330M)
VIG Phase 2 Expansion ($325M)
NIT Optimization ($350M)
NIT CRY Expansion ($20M)
VIP BUILD ($26.5M)
6-Year Capital Outlay ($1.6B)

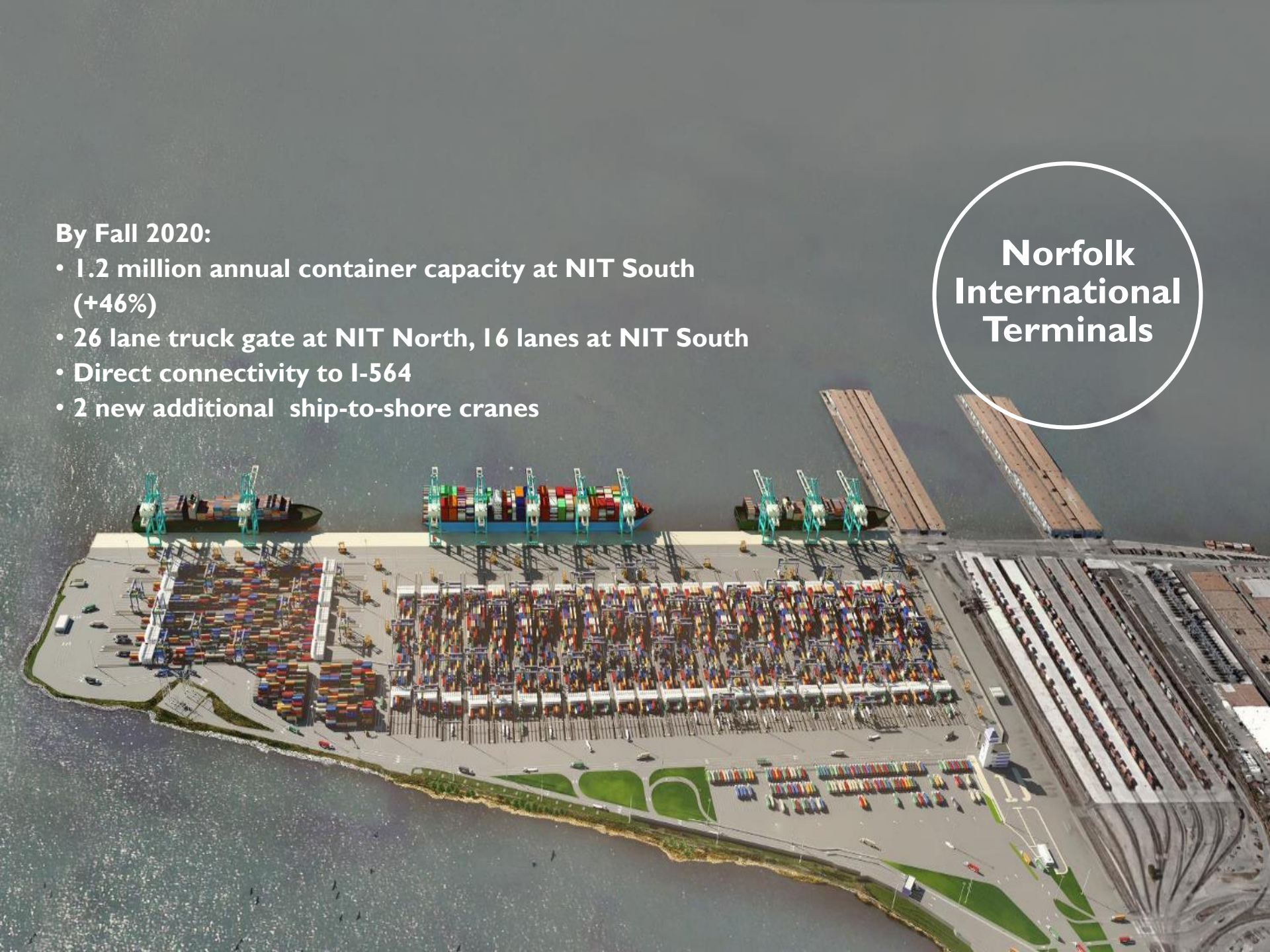
THE PORT OF VIRGINIA | *Stewards of Tomorrow*

SeaportOPX
Digital operational services for ports

Norfolk International Terminals

By Fall 2020:

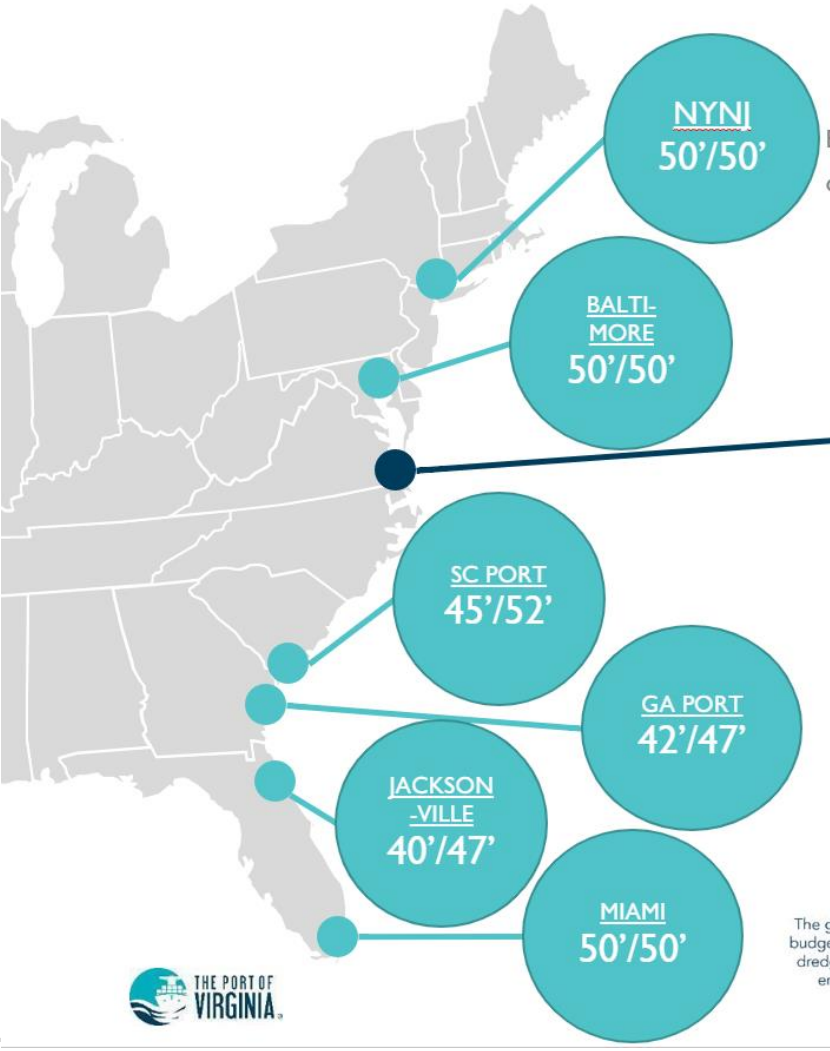
- **1.2 million annual container capacity at NIT South (+46%)**
- **26 lane truck gate at NIT North, 16 lanes at NIT South**
- **Direct connectivity to I-564**
- **2 new additional ship-to-shore cranes**



Norfolk Harbor Channels Navigation Improvements

WIDER
DEEPER
SAFER

2020



EAST COAST PORT DEPTHS

By 2025, The Port of Virginia will by the only port of the US East Coast with a 55+' channel depth.

THE PORT OF VIRGINIA® 50' / 55+'

NOV '17
The governor-elect's proposed budget includes the cost for the dredging project's preliminary engineering and design

MAY '18
The Virginia Legislature approves $350 million for the project's engineering, design and construction

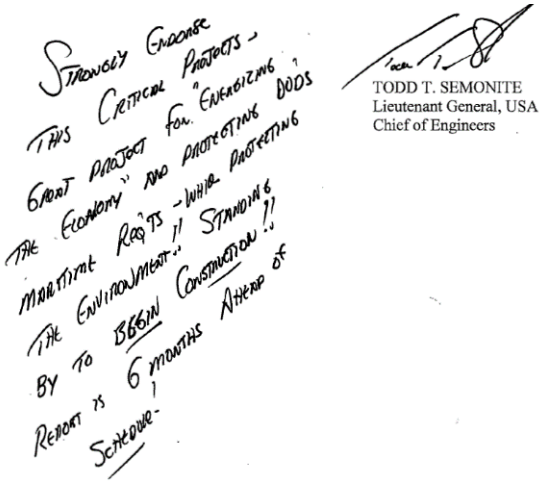
JUN '18
The U.S. Army Corps of Engineers gives its final approval for it to move ahead

EARLY '20
Construction on deepening the channel to 55 feet and widening in certain areas begins*

EARLY '25
The dredging work is complete, and Virginia is home to the deepest port on the U.S. East Coast*
**Proposed schedule*

Norfolk Harbor Navigation Improvements

- Completed the GRR 6 Months Ahead of Schedule
- Chief's Report Signed (June 2018)
- Preconstruction Engineering and Design (PED) – Complete in June 2019
- Construction Start – 2020



We're doing this faster than any other navigation project EVER!

THE PORT OF VIRGINIA | *Stewards of Tomorrow*

SeaportOPX
Digital operational services for ports

Our Challenge

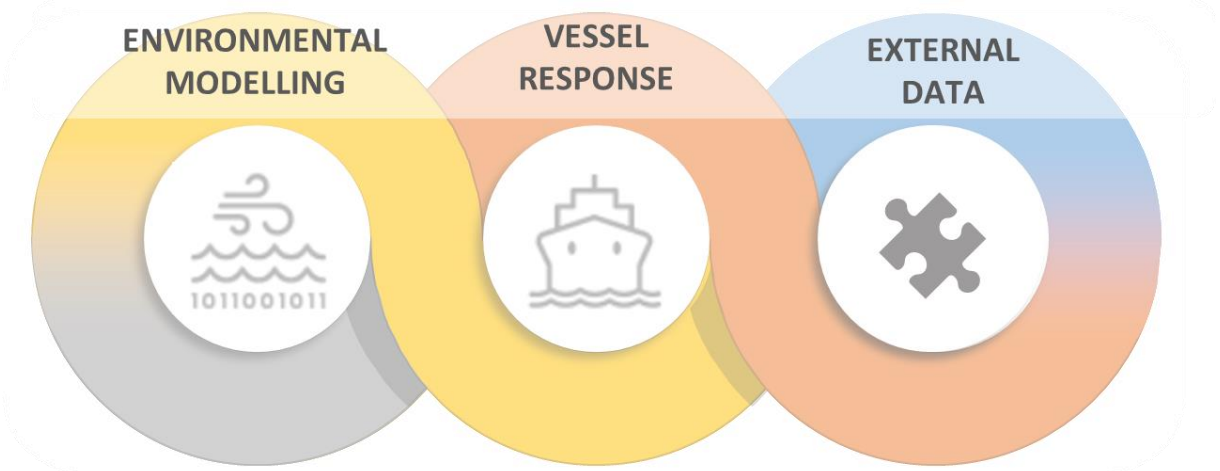
- Larger Ships = Longer Calls
- Longer Calls = More Susceptibility to Adverse Weather Conditions
- As weather condition changes, you must make decisions that have costly implications

Doing Something About it

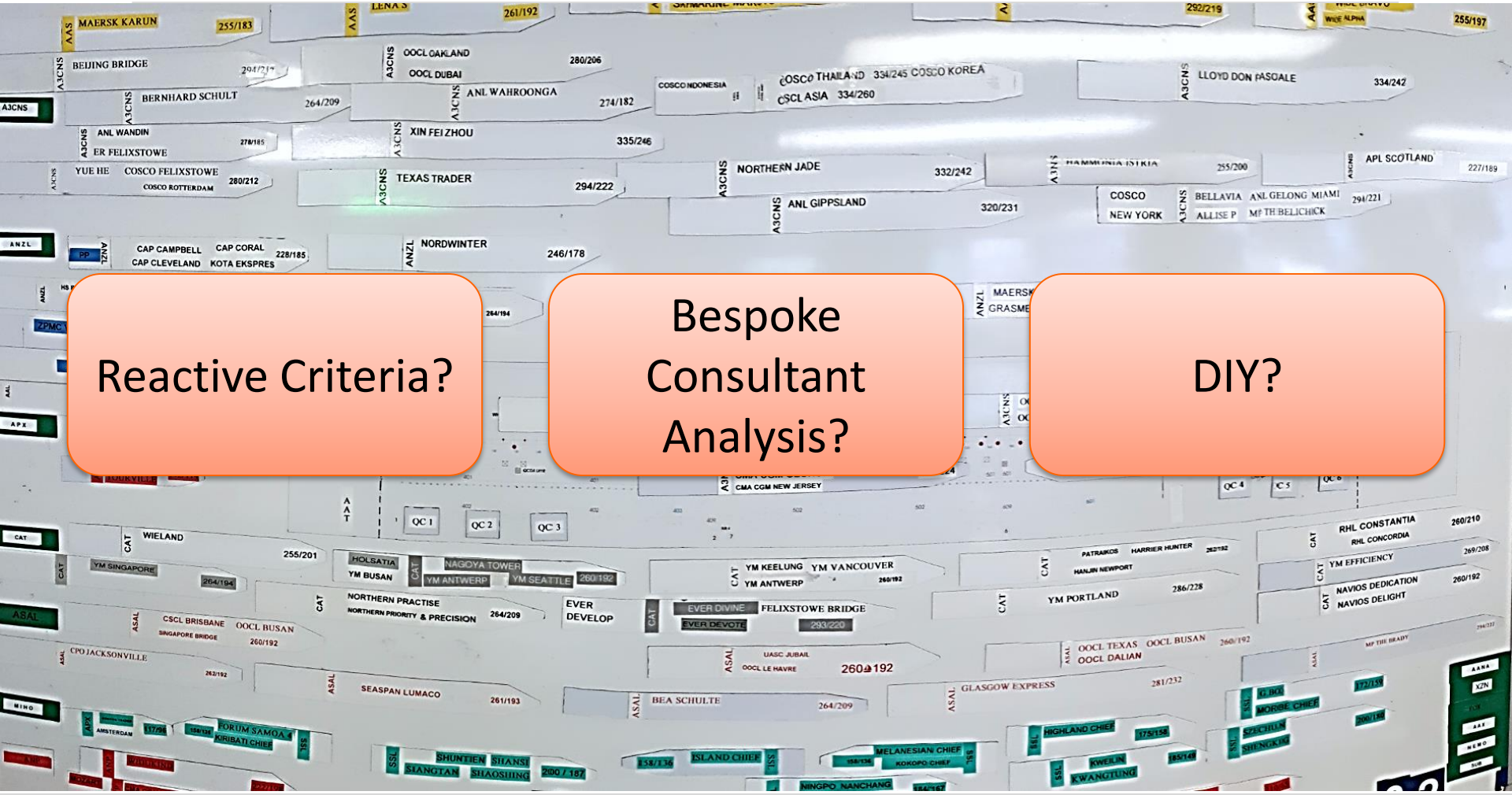
Capacity Through Optimized Decision Making

A Smarter Way

The world's most advanced physics based decision support system for ports



The Past



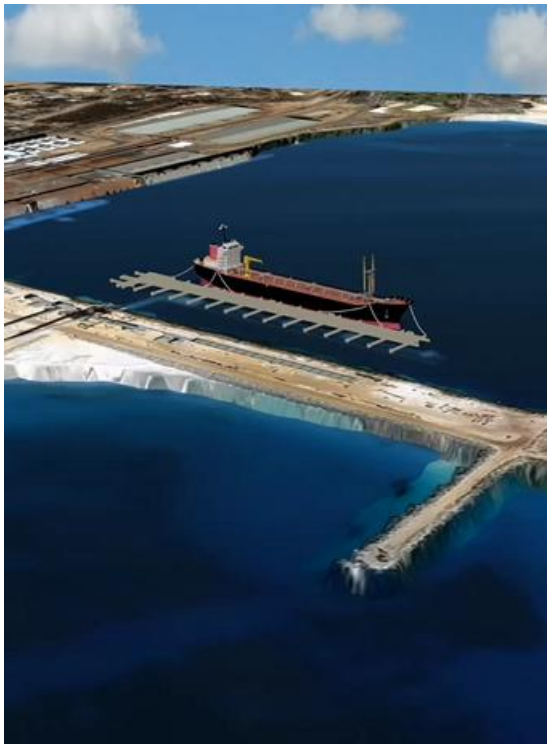
The Next Normal

Proactive | Objective | Automated | Quantitative | Efficient | Accurate

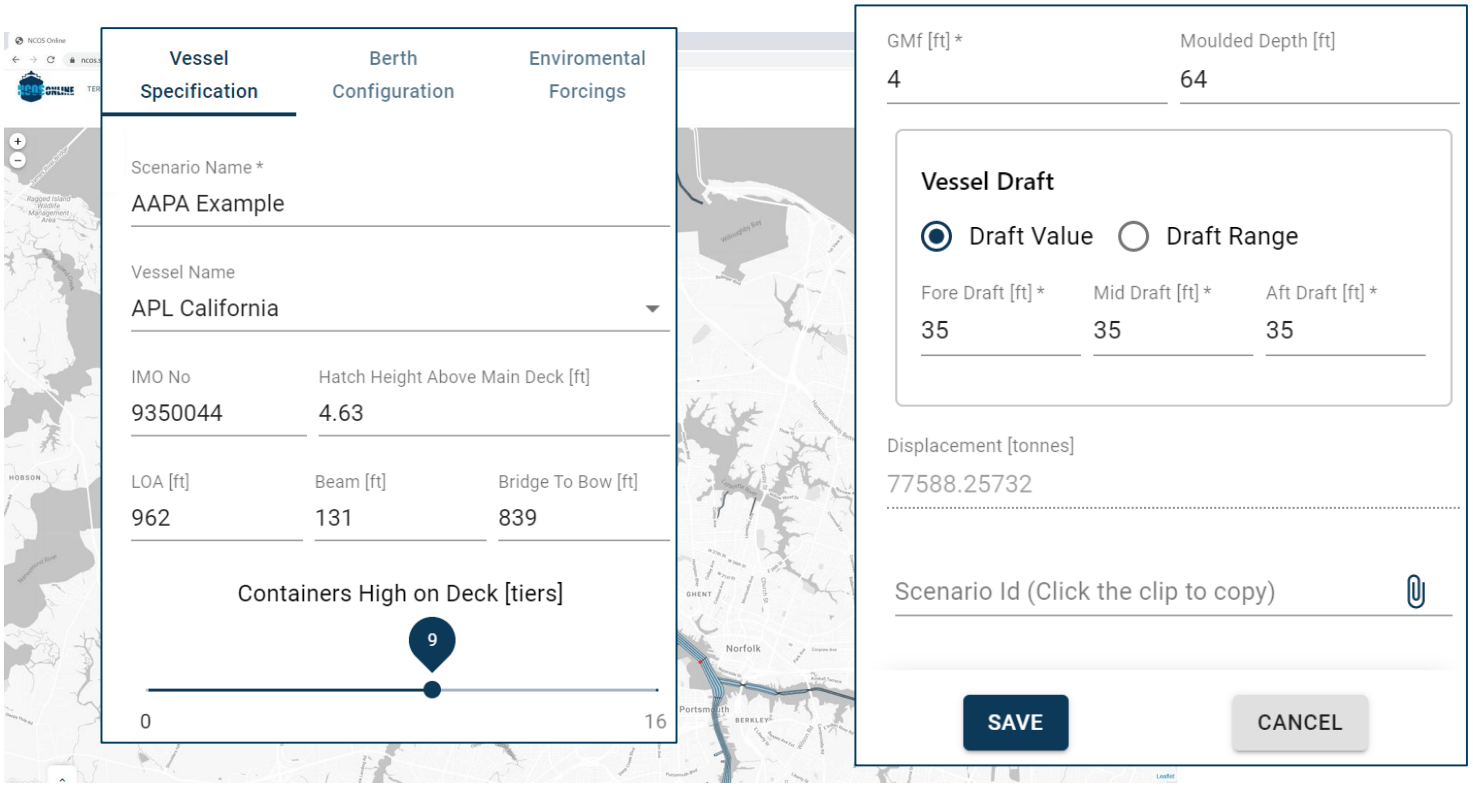
Reactive Criteria?

Bespoke Consultant Analysis?

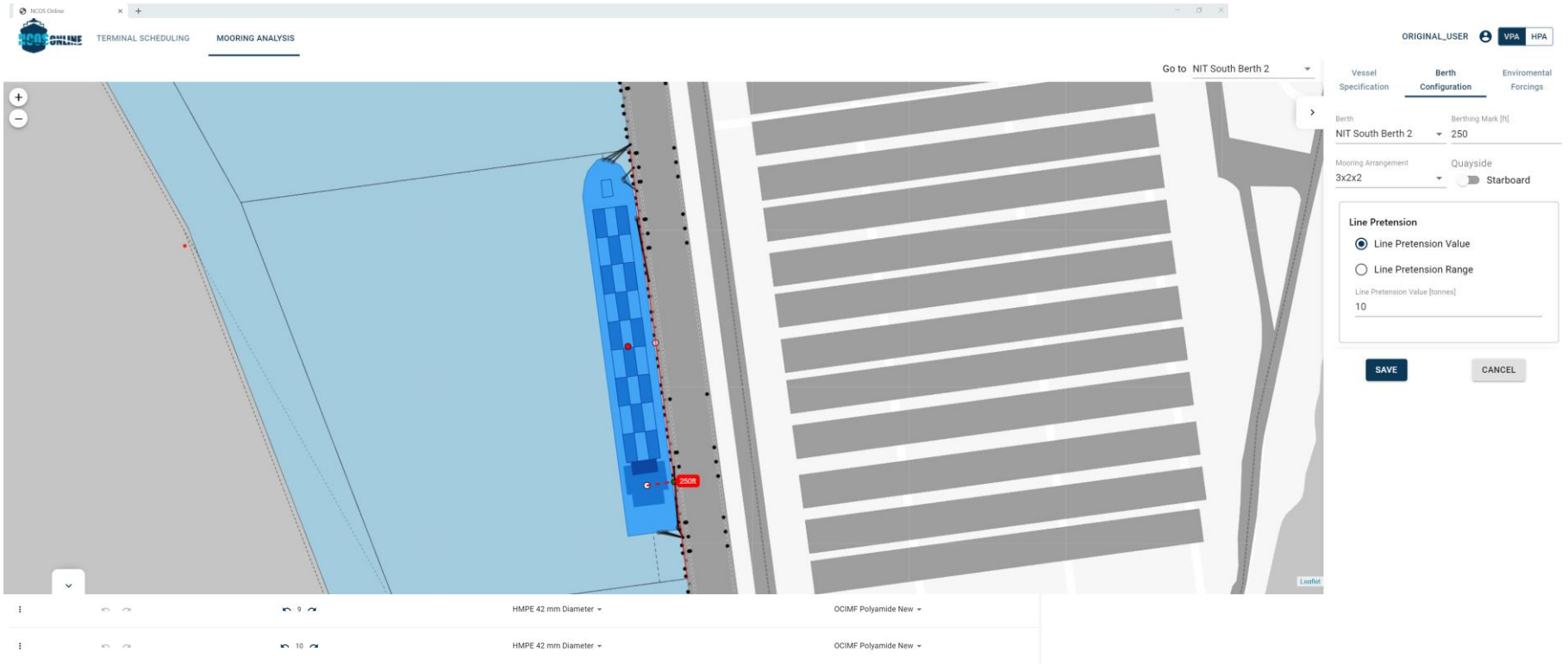
DIY?



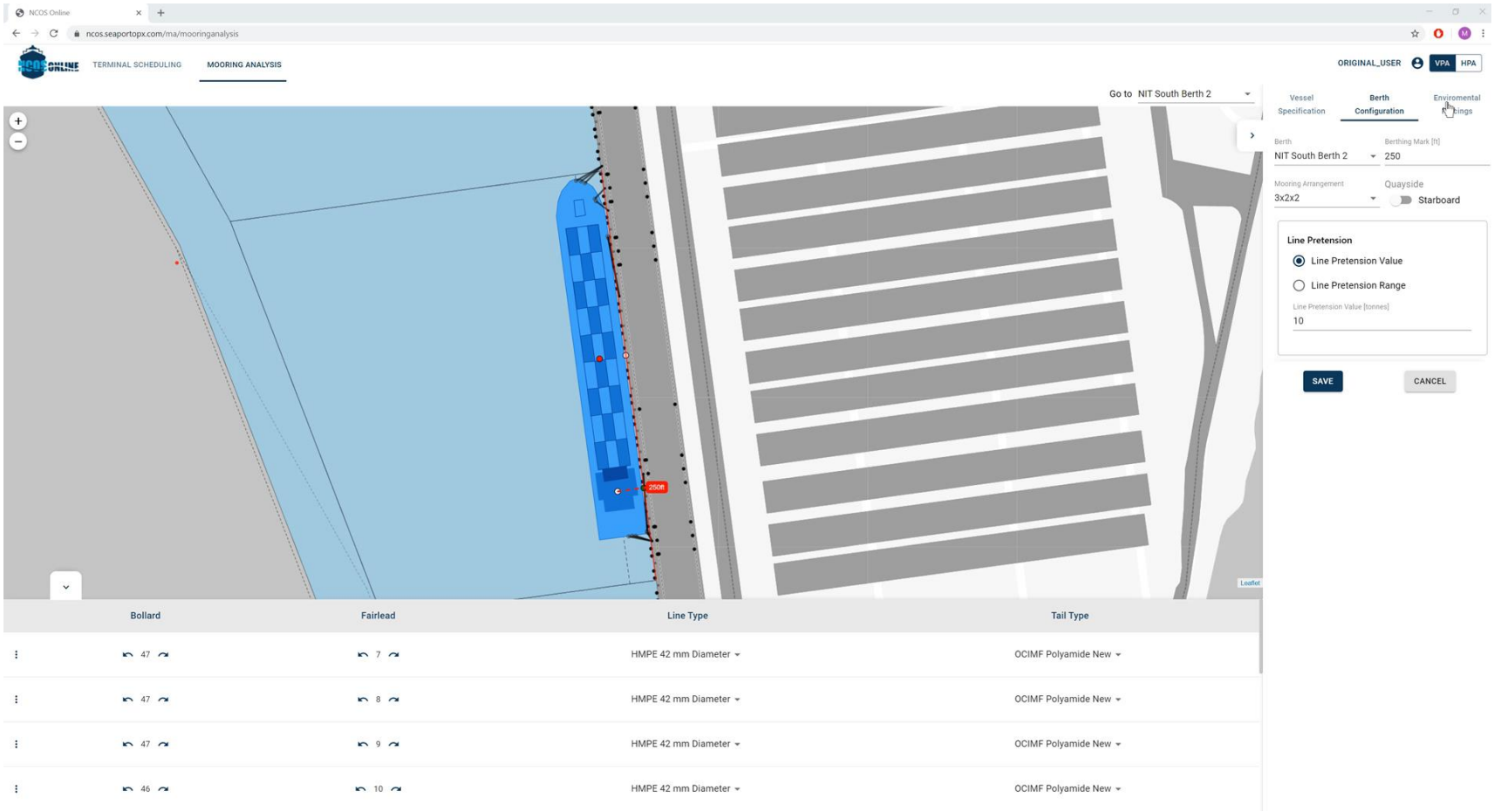
Vessel Specification



Configure Berth

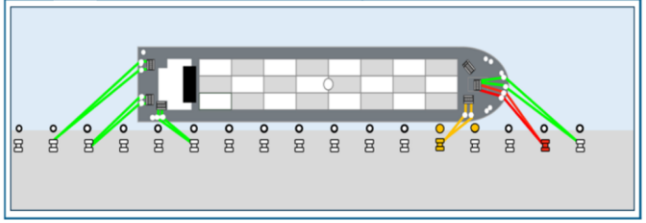


Environmental Forcing



Results

Vessel	
Arrival/Departure	Arrival
Vessel Name	APL California
Port	Port of Virginia
Terminal	NIT Berth 2
DWT	72912
LOA (ft)	962
Beam (ft)	131
Longitudinal Windage Area (m^2)	6500
Lateral Windage Area (m^2)	1000
Draft (ft)	35

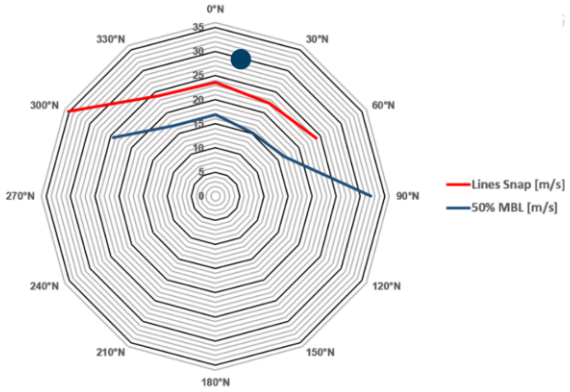


Environmental Conditions	
Wind speed (kn)	30
Wind direction (deg)	010
Current speed (kn)	0.5
Current direction (deg)	020
Wave height (m)	-
Wave period (s)	-
Wave direction (deg)	-

Analysis Summary			
Mooring Lines		Fender Failure	Bollard Failure
50% MBL exceedance	Snapped		
5	3	L	A
6	4	M	B

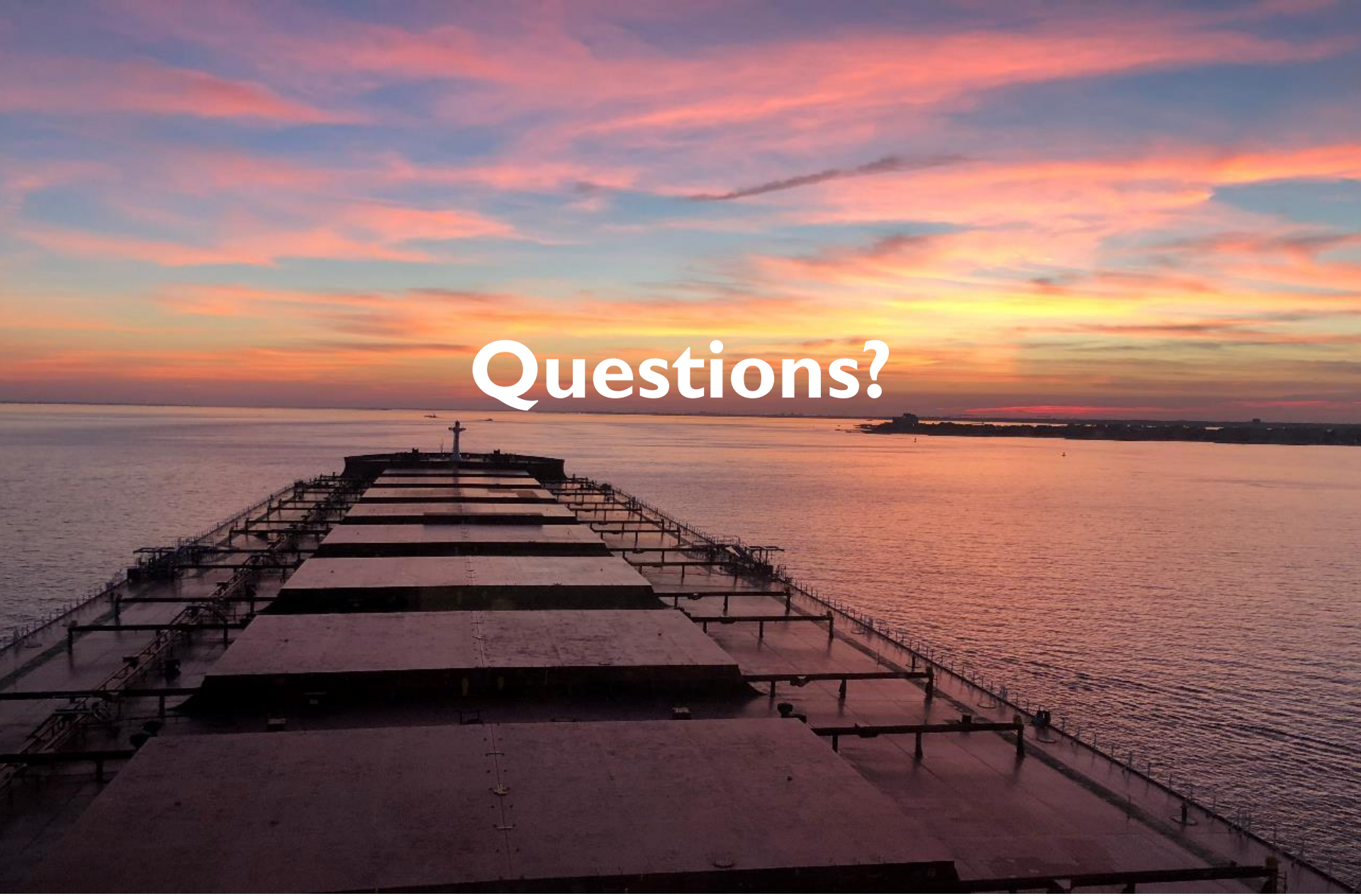
Maximum P2P Vessel Motions					
Surge (m)	Sway (m)	Roll (°)	Pitch (°)	Heave (m)	Yaw (°)
0.5	0.2	0.2	0.1	0.2	0.3

DIRECTIONAL WIND ROSE



Results

TRANSITS
MAP
BATHYMETRY
LIVE WEATHER
ACTIVITY LOG
MOORING ANALYSIS
Mooring Analysis
North Terminal
Schedule View
48 HOURS
7 DAYS
YEARS
CMA CGM MOZART
GOLDEN ASPIRANT
BLUE ALEXANDRA
PERFORMANCE
MSC PEGASUS
STENA PARIS
Weather prognostics for North Terminal
Wind Strength
08:00
08:10
08:20
08:30
08:40
08:50
09:00
09:10
09:20
09:30
09:40
09:50


Questions?