

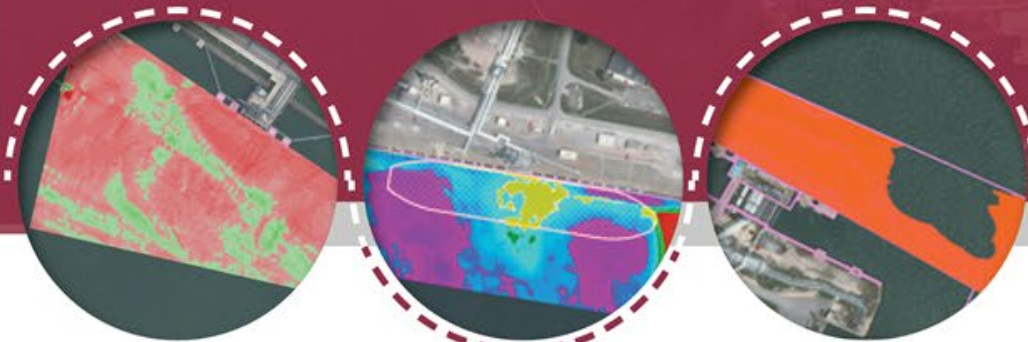


T. BAKER SMITH
A CENTURY OF SOLUTIONS

Dock Management System

Comprehensive Program
for Maintaining Safe
Under Keel Clearance

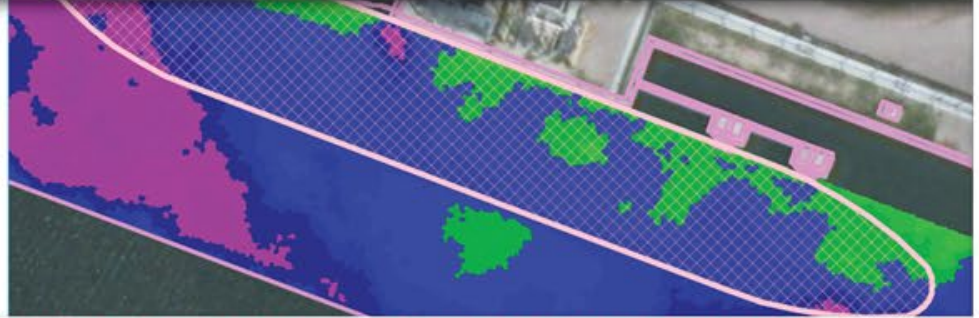
James M. ("Jim") Naismith, RPLS, LSLS



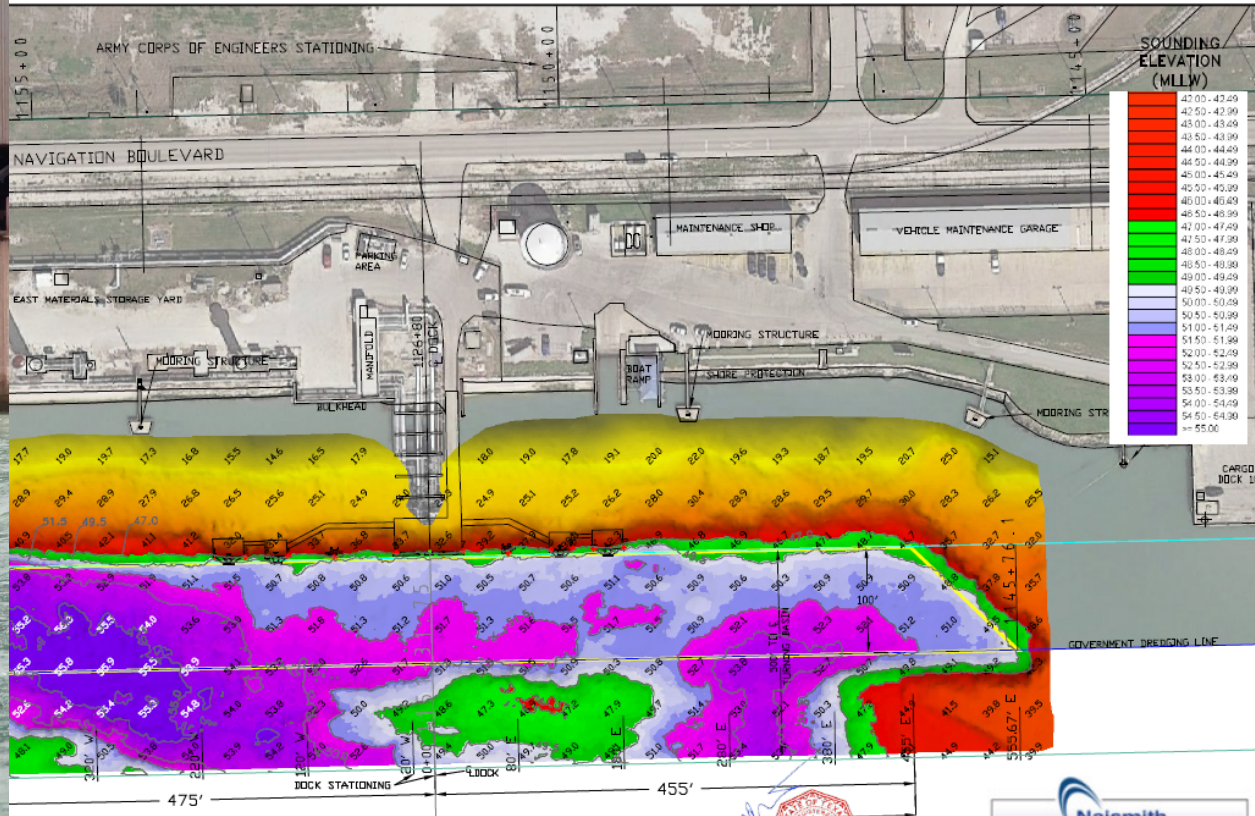
Vessel: 42 Under: 2 314

Run Clearance Calculation

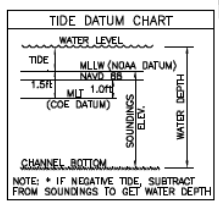
Minimum Survey-Depth Under Vessel: 45.0(ft)
Water Level: 1.0(ft)
Date: 10/11/21, 3:12 PM



Begins with a Soundings Program



- NOTES:**
1. VESSEL LENGTH LIMIT IS 1,000 FEET.
 2. TOP OF DOCK ELEVATION IS 14.2 FT ABOVE MEAN LOWER LOW WATER (0.0')
 3. SOUNDINGS SHOWN WERE TAKEN MARCH 6, 2020 BY NAISMITH MARINE SERVICES.
 4. THE PORT OF CORPUS CHRISTI ASSUMES NO LIABILITY FOR THE ACCURACY OF THIS INFORMATION. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE DEPICTED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS.
 5. ALL READINGS ARE BASED ON THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) MEAN LOWER LOW WATER (MLLW) DATUM, (0.0')
 6. HORIZONTAL DATUM: NAD-83, STATE PLANE, TEXAS SOUTH ZONE, US FEET.
 7. TO GET THE DEPTH OF WATER, ADD THE CURRENT TIDE LEVEL TO THE READINGS SHOWN. (SEE TIDE DATUM CHART).



SCALE: 1" = 100 FEET • 11" x 17"

NO.	DATE	REVISION



PORT OF CORPUS CHRISTI AUTHORITY

**SOUNDINGS
OIL DOCK 1**

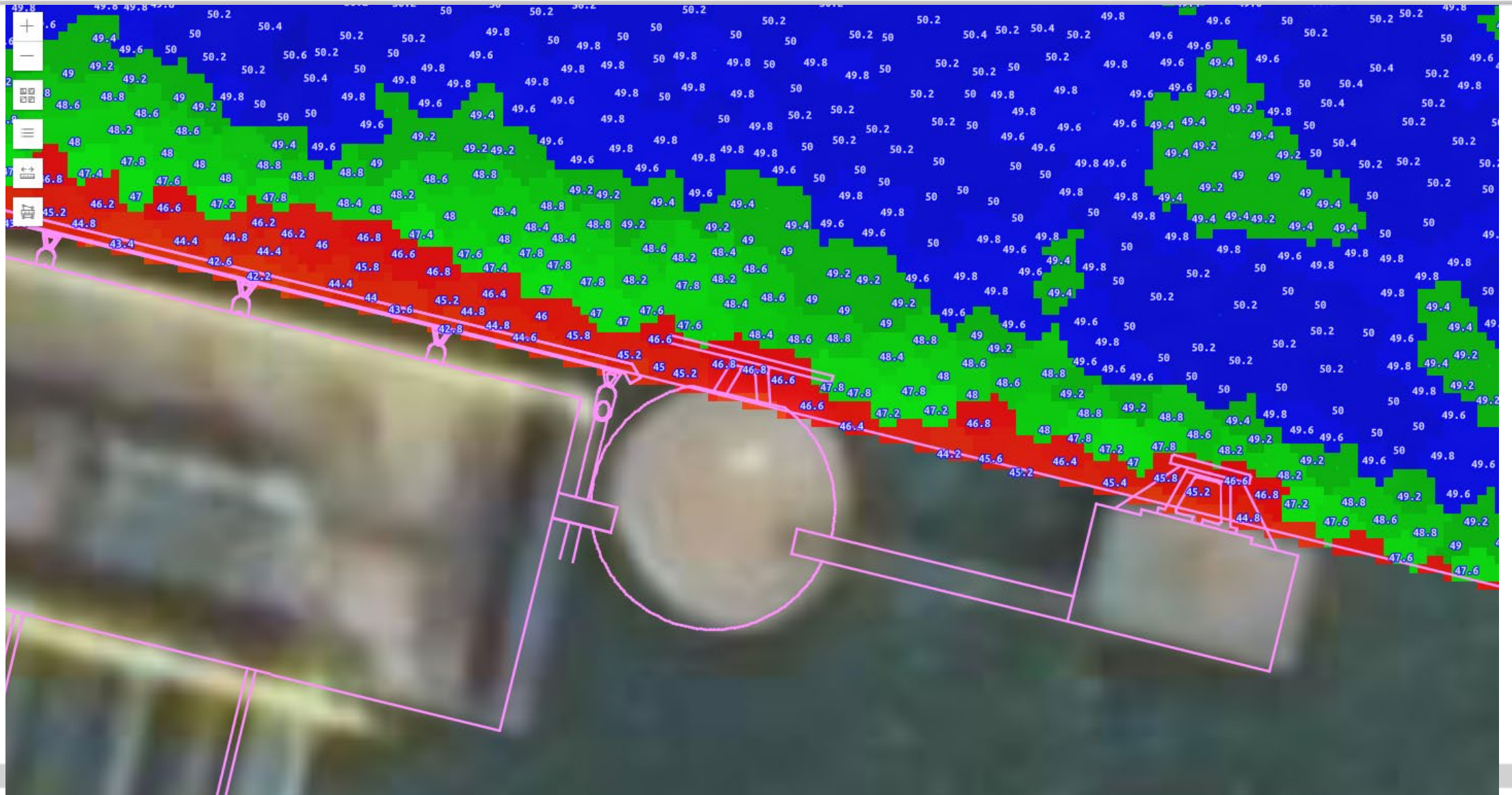
SCALE: 1" = 100'
DWN. BY: BSG

PLAN

MAR, 2020

2007 F.M. 3036, Rockport, Texas 78382
www.tbasmith.com
TBPLS Firm No. 10110201

Soundings Uploaded to the Dashboard



Dashboard's Primary Function

- Communication
 - Up-to-date bathymetry (depths)
 - Minimum depth at a berth or area
 - Under keel clearance for a specific vessel and water level
 - Accumulated sediment and associated dredge volume
 - Shoal / Scour rate for maintenance planning

Dock/Berth Overlay

Dock Management System Admin | Test-import-infrastructure Work | Test-import-hypack-color-ramp | TBS Dock Management System | Test-import-control-data Works | Test-import-area-boundary Work | Settings

tbsdockmanagement.azurewebsites.net/#/portalobs

Home | Dock Management Dashboard | Documents

Current Areas
TBS GENERIC 14

- Latest Observations
- Latest Currents
- Vessel Clearance Calculator
- Volume Calculator
- PlacementAreas
- Color Ramp

Infrastructure Control

- Survey

31 - 31.99
32 - 32.99
33 - 33.99
34 - 34.99
35 - 35.99
36 - 36.99
37 - 37.99
38 - 38.99
39 - 39.99
40 - 40.99
41 - 41.99
42 - 42.99
43 - 43.99
44 - 44.99

UTM 14R 660674 2871534

Data is for reference only, not to be used for navigation. Sea floor conditions are subject to change.
Area Last Survey Date : 1/1/2021

Maxar, Microsoft | Powered by Esri

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Add Vessel - Set Draft and Under Keel

Dock Management System Admin | Test-import-infrastructure Work | Test-import-hypack-color-ramp | TBS Dock Management System | Test-import-control-data Works | Test-import-area-boundary Work | Settings

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Current Areas

TBS GENERIC 14

- Latest Observations
- Latest Currents
- Vessel Clearance Calculator
- Volume Calculator
- PlacementAreas
- Color Ramp

Vessel Clearance Calculator

Only Display Clearance Under Vessel

Select an Area: Panamax

Vessel D.: 36 | Under Keel: 2

Rotate Vessel: 272°

Run Clearance Calculation

Minimum Survey-Depth Under Vessel : 29.6(ft)
Water Level : 1.7(ft)
Updated : 6/28/21, 7:36 AM

Survey Depth	-8.4(ft) ▲	View
Current Depth	-6.7(ft) ▲	View
2-HR Depth	-6.5(ft) ▲	View
4-HR	-6.4(ft) ▲	View
6-HR	-6.4(ft) ▲	View

Data is for reference only, not to be used for navigation. Sea floor conditions are subject to change.
Area Last Survey Date : 1/1/2021

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Zoom to Potential Clearance Issue

Dock Management System Admin | Test-import-infrastructure Work | Test-import-hypack-color-ramp | TBS Dock Management System | Test-import-control-data Works | Test-import-area-boundary Work | Settings

tbsdockmanagement.azurewebsites.net/#/portalobs

Home | Dock Management Dashboard | Documents

Current Areas

TBS GENERIC 14

Latest Observations

Latest Currents

Vessel Clearance Calculator

Volume Calculator

PlacementAreas

Color Ramp

Vessel Clearance Calculator

Only Display Clearance Under Vessel

Select an Area: **Panamax**

Rotate Vessel:

Vessel D.: Under Ke.:

Run Clearance Calculation

Minimum Survey-Depth Under Vessel : **33.8(ft)**
Water Level : **1.7(ft)**
Updated : **6/28/21, 7:36 AM**

Survey Depth	-1.2(ft) ⚠	View
Current Depth	0.5(ft) ✓	View
2-HR Depth	0.7(ft) ✓	View
4-HR	0.8(ft) ✓	View
6-HR	0.8(ft) ✓	View

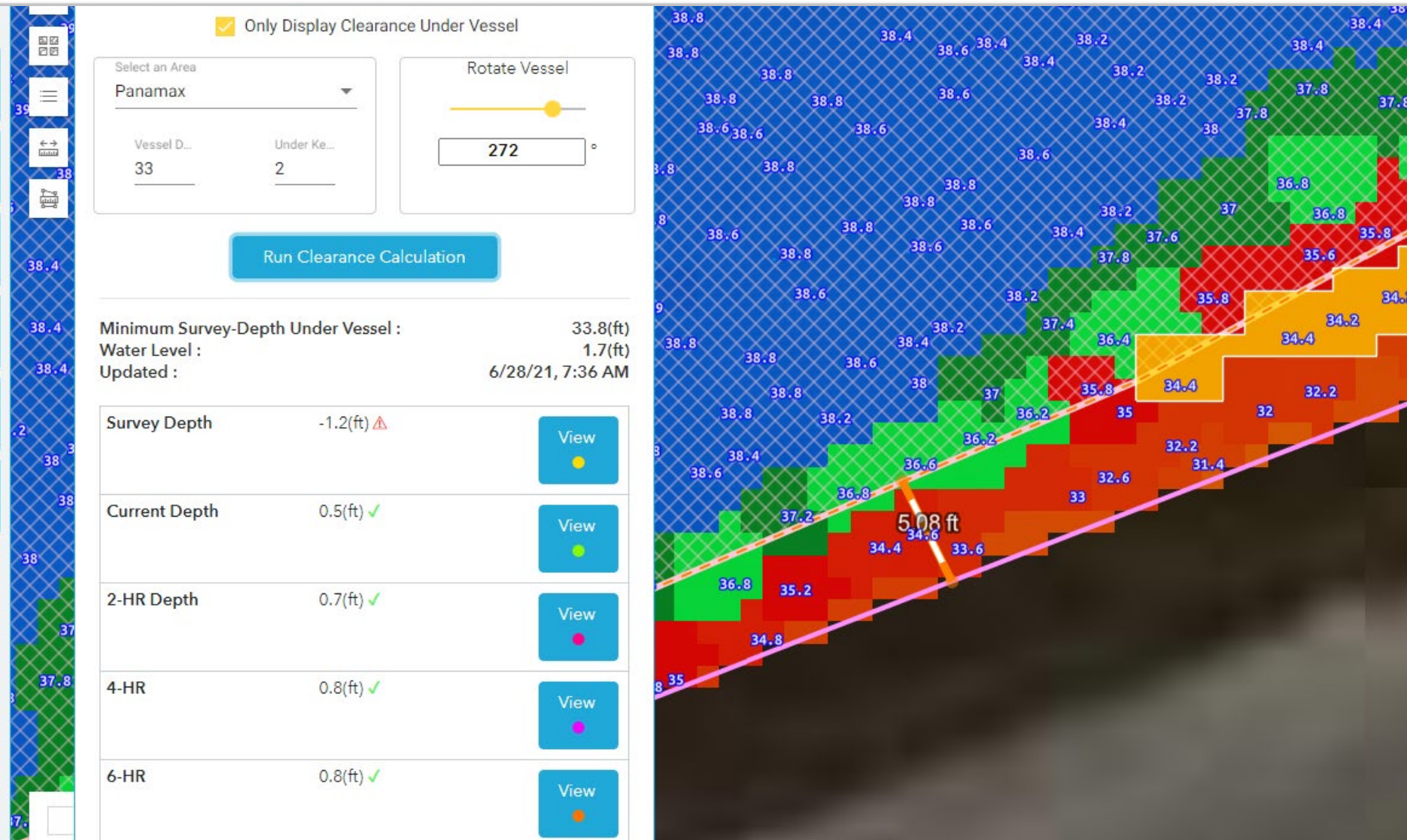
5.08 ft

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Area Last Survey Date : 1/1/2021

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Forecast Water Levels / Tide



Soundings uploaded to Portable Pilot Unit (PPU)

Wheelhouse 3 3.4.77.0 Route=01: Tosoro Dock Vessel=CAPE RISE

The interface displays a map of a harbor area with depth soundings. A route is plotted through the harbor, and various navigational aids (RR, RF) are visible. A scale bar indicates 0.375 NM.

Depth Colors Configuration Window:

XYZ	ENC	Ranges (ft)	Color 1	Color 2
<input type="checkbox"/>	<input type="checkbox"/>	0 - 10 +	Red	Dark Red
<input type="checkbox"/>	<input type="checkbox"/>	10 - 20 +	Orange	Brown
<input type="checkbox"/>	<input type="checkbox"/>	20 - 30 +	Yellow	Olive Green
<input type="checkbox"/>	<input type="checkbox"/>	30 - 47 +	Light Blue	Light Green
<input type="checkbox"/>	<input type="checkbox"/>	47 - 55 +	Blue	White
<input type="checkbox"/>	<input type="checkbox"/>	55 - max +	White	White

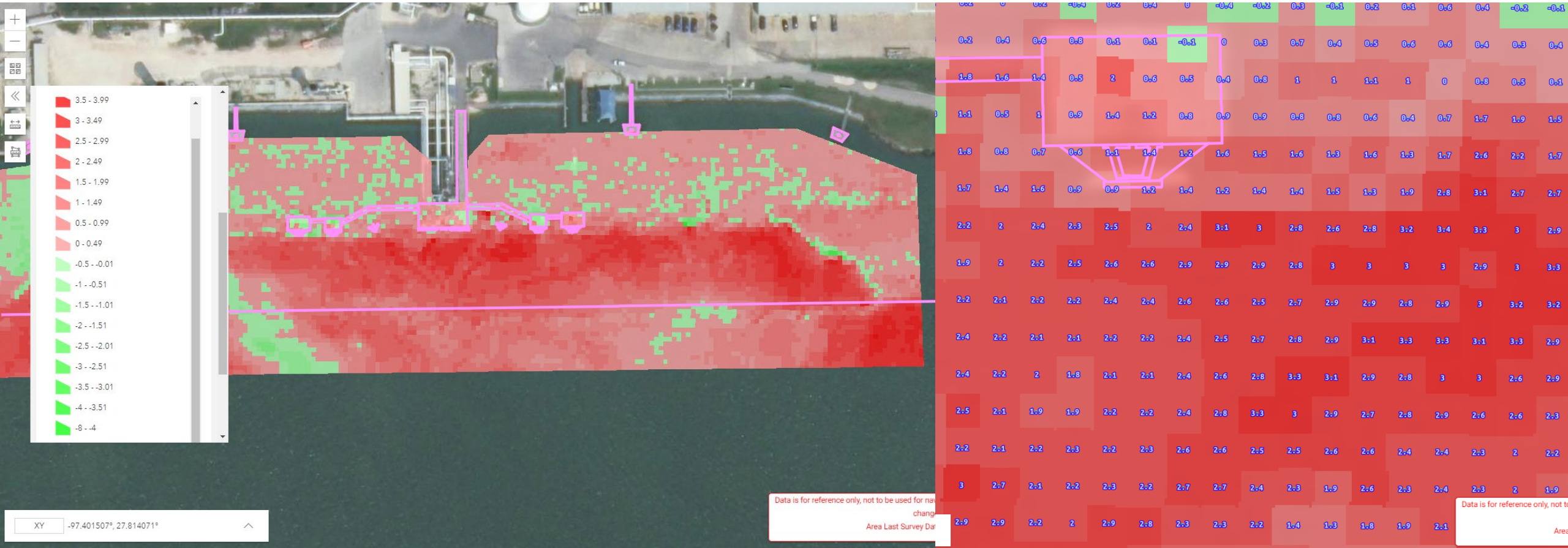
Buttons: Defaults, Apply, Feet, [Checkmark], [X]

Right Sidebar Data:

- SHIP: CAPE RISE
- HDG: 078.0°T
- COG: 078.0°T
- SOG: 0.0_{kn}
- NEXT: Harbor Island
- BRG: 077.8°T
- DIST: 2616_{ft}
- TTG: ---
- DEST: Last Waypoint
- ETA: ---
- DIST: ---
- 10:50:23 MAY 05
- Speedometer: 0.0 _{kn/min}

Bottom Left: R 38 ft

Shoaling or Scour (Compare Surveys)



Volume Calculations

TBS Dock Management System

tbsdockmanagement.azurewebsites.net/#/portalobs

TBS Home | Dock Management Dashboard | Documents

Current Areas
TBS GENERIC 3


Latest Observations

Latest Currents

Vessel Clearance Calculator

Volume Calculator

PlacementAreas



XY -94.807345°, 29.311236°

Maxar, Microsoft

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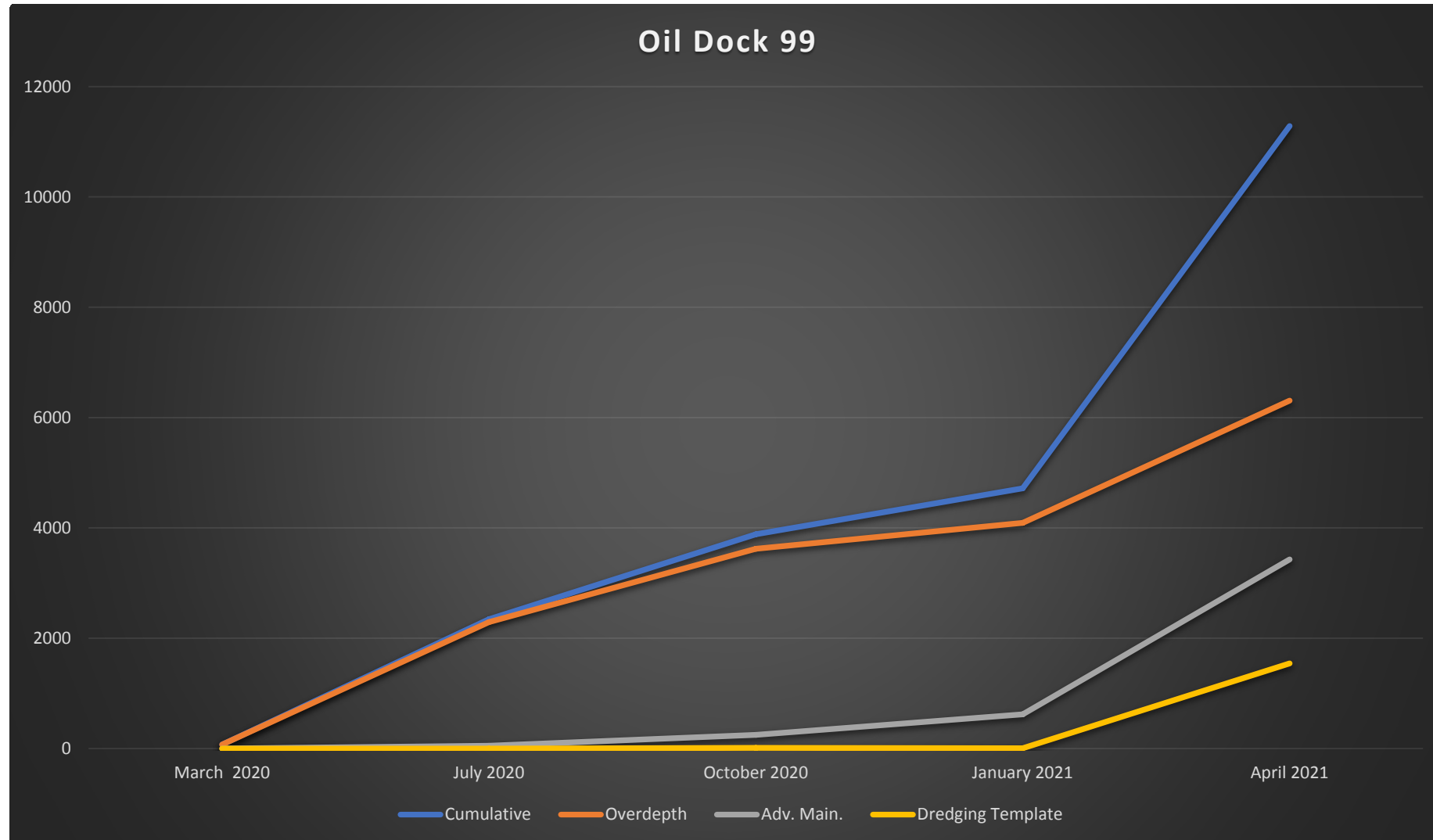
Data is for reference only, not to be used for navigation. Sea floor conditions are subject to change.
Area Last Survey Date : 1/1/2021

Volume Calculator

Dredge Depth(ft) 35 Advanced Maintena... 0 Allowable Over Dept... 2

Volume In Design Template	Volume In Advanced Maintenance	Volume In Over Depth	Total Volume
6,556 yd ³	0 yd ³	5,083 yd ³	11,639 yd ³

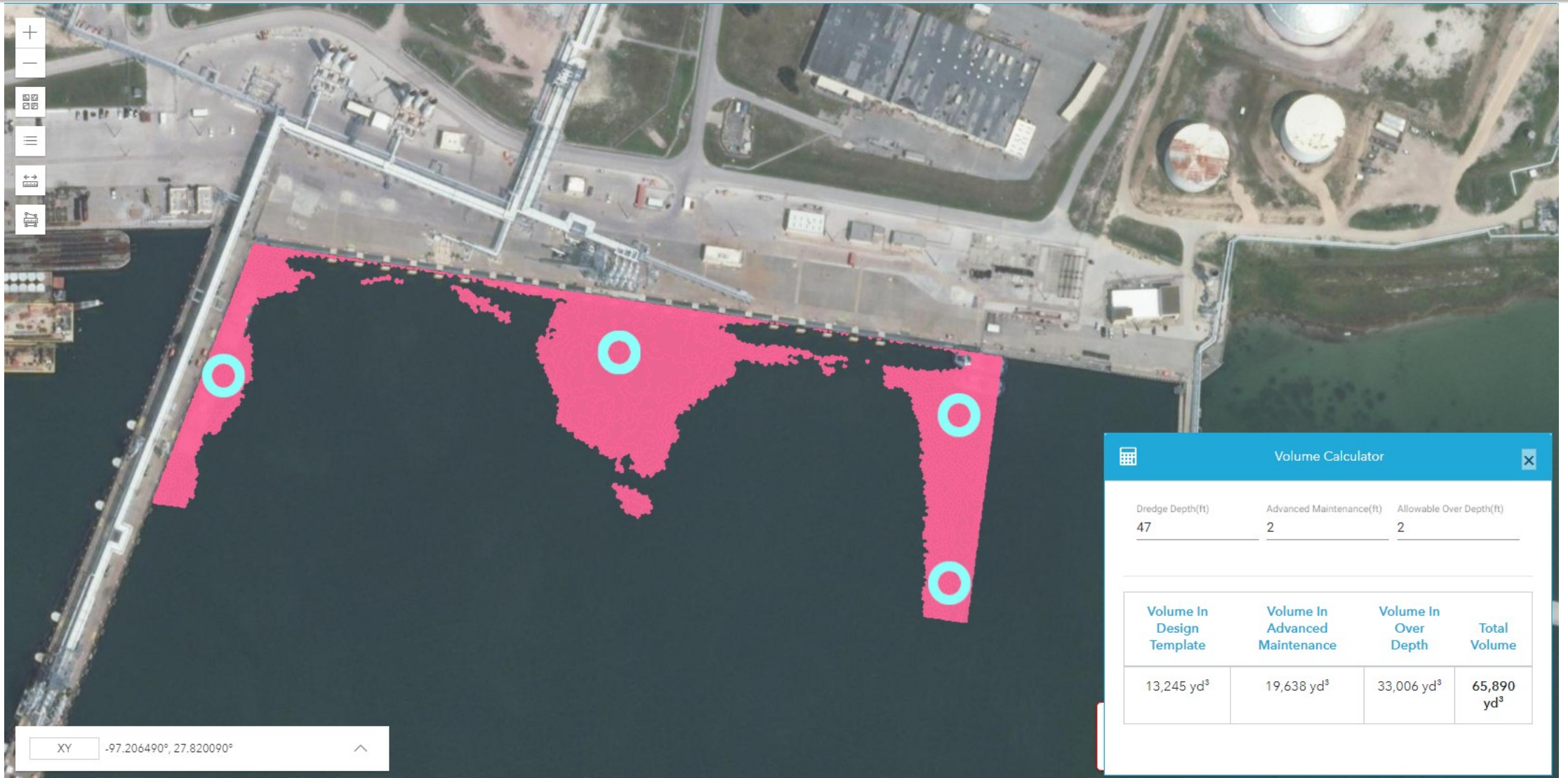
Dredge Volume Tracking



Planning, Permitting, Water Quality

- Maintenance Dredging Scheduling
- Maintenance Dredging Engineering
- U.S. Army Corps of Engineers
 - Regulatory (Section 10/404/103) Permits
 - Section 408 Authorization
 - Real Estate Outgrant (Federal DMPA)
 - Sediment and Water Testing – During Surveys
- Texas Commission on Environmental Quality (TCEQ)
 - Water Quality Certification

Sediment Sampling



Multiple Berths

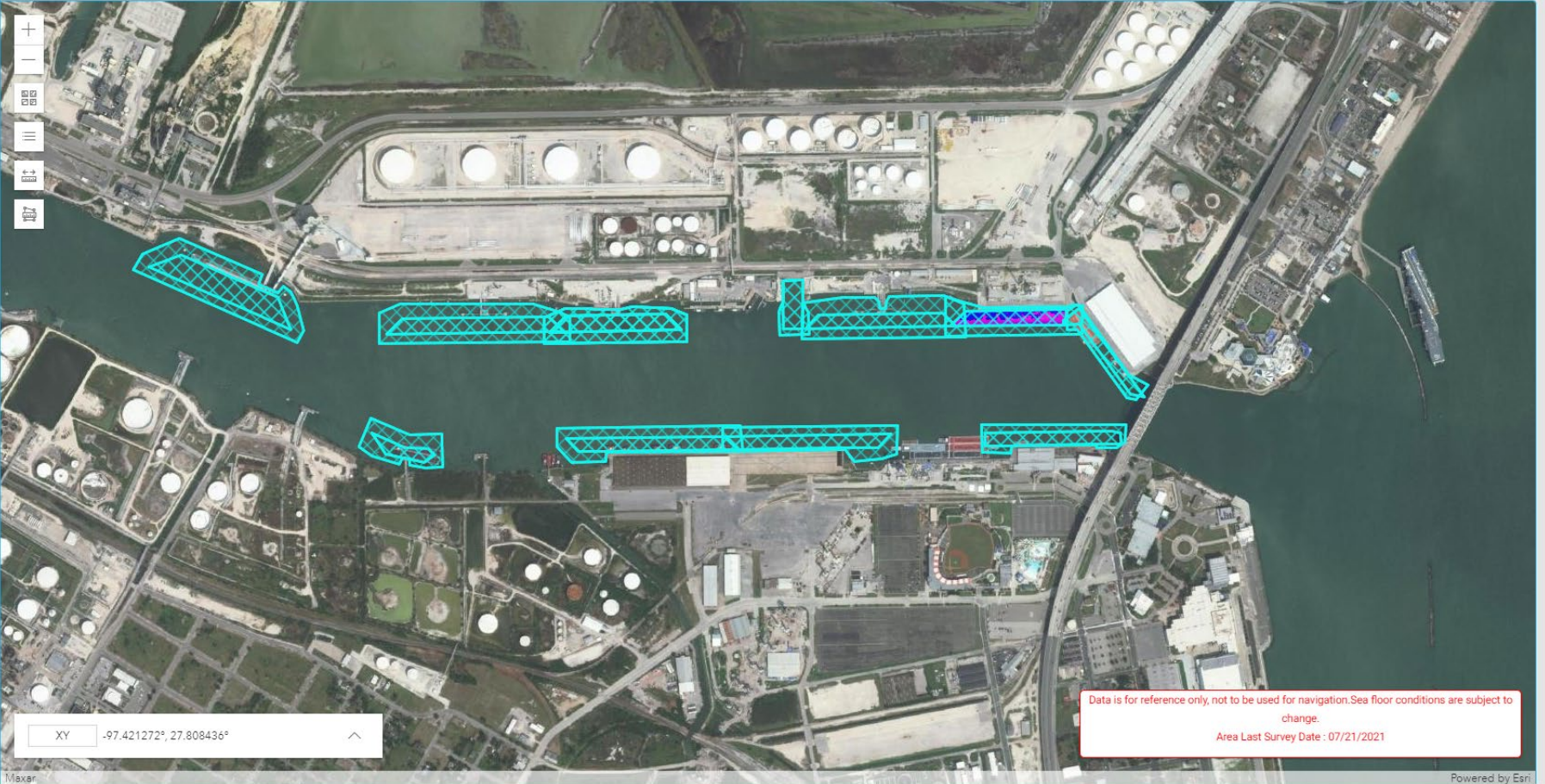
TBS Dock Management System x +

masterdockmanagement.azurewebsites.net/#/portalobs

TBS Home | Dock Management Dashboard | Documents

Current Areas
POCCA-CARGO DOCK 10

- Latest Observations
- Latest Currents
- Vessel Clearance Calculator
- Volume Calculator
- PlacementAreas
- Color Ramp



XY -97.421272°, 27.808436°

Data is for reference only, not to be used for navigation. Sea floor conditions are subject to change.
Area Last Survey Date : 07/21/2021

Powered by Esri

Weather and Current Observations

The screenshot displays the TBS Dock Management System interface. The browser address bar shows the URL `tbsdockmanagement.azurewebsites.net/#/portalobs`. The application header includes the TBS logo and navigation links for Home, Dock Management Dashboard, and Documents.

Current Areas: TBS GENERIC 1

Latest Observations

Latest Currents

Vessel Clearance Calculator

Volume Calculator

PlacementAreas

Latest Currents Panel:

- Aransas Pass LB6**
Speed & Direction: 0.185Kts WSW | Last Updated: 5/11/21, 7:16 AM
- Port Aransas, Channel View**
Speed & Direction: 1.275Kts NW | Last Updated: 5/11/21, 7:16 AM

Map: A bathymetric map showing depth contours in red, green, and blue. A coordinate box at the bottom left displays: XY -97.417767°, 27.815039°.

Disclaimer: Data is for reference only, not to be used for navigation. Sea floor conditions are subject to change. Area Last Survey Date : 1/1/2021

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Access to Surveys, Technical Documents, Etc.

MODA

geospatial.tbsmith.com/portal/apps/sites/#/data

Moda Ingleside Energy Center

Jim

Web Map

Dashboard

Explore

Explore

Surveys

Survey May 7, 2020

Survey June 9, 2020

Survey July 26, 2020

Explore

Explore

Explore

Technical Documents

Dock Management System – Installed

- Started with 3 in 2020, added 33 in 2021
- For quarterly surveys, the cost is included in the deliverables.
- For annual surveys or surveys provided by the client, a subscription is available for the system.

Channel Management System

TBS Dock Management System | Dock Management System Admin | Import Control Data | Import Vessel Data

tbsdockmanagement.azurewebsites.net/#/portalobs

Home | Dock Management Dashboard | Documents | Project Status

Current Areas
TBS GENERIC 06

Latest Observations
Latest Currents
Vessel Clearance Calculator
Volume Calculator
Placement Areas

XY: -90.617583°, 29.202703°

Vessel Clearance Calculator
 Only Display Clearance Under Vessel
Select an Area: Offshore Supply 187x53ft

TBS Dock Management System | Dock Management System Admin | Import Control Data | Import Vessel Data

tbsdockmanagement.azurewebsites.net/#/portalobs

Home | Dock Management Dashboard | Documents | Project Status

Current Areas
TBS GENERIC 06

Latest Observations
Latest Currents
Vessel Clearance Calculator
Volume Calculator
Placement Areas

XY: -90.625359°, 29.199394°

Vessel Clearance Calculator
 Only Display Clearance Under Vessel
Select an Area: Offshore Supply 187x53ft

Vessel Draft: 13 | Under Keel Clearance: 1

Selected Vessel Draft: 13.0(ft)
Selected Keel Clearance: 1.0(ft)
Minimum Survey-Depth Under Vessel: 13.6(ft)
Minimum Latest-Depth Under Vessel: 14.9(ft)
Water Level: 1.3(ft)
Updated: 6/4/21, 7:24 AM

Control-MLLW-	Now	2-Hour	4-Hour	6-Hour	
0	-0.4(ft) ⚠	0.9(ft) ✓	1.0(ft) ✓	1.1(ft) ✓	1.1(ft) ✓

Current: 1.2, 1.0, 0.8, 0.6, 0.4, 0.2, 0, -0.2, -0.4

2HR, 4HR, 6HR

Future: Placement Areas, Dikes, Levees, and Pipeline Routes



Summary – Safety and Situational Awareness

- Monitor the draft and function of channels, docks, and berths
- Plan maintenance activities
- Communicate with various agencies, owners, and users
- All we do comes back to **Situational Awareness**

- Safely bringing a vessel in, loading and/or unloading, and safely transiting back to the shipping lanes.