National Dredging Quality Management (DQM) Program

National Dredging Meeting

March 8, 2019
Memphis, TN

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National DQM Center

Presentation Outline

- Program Status/Advancements
- Current Significant Activities
- Future Objectives

Program Status

Since Last Year....

- New DQM Viewer (JavaS)
- New Security Access
- Pipeline Monitoring
- DQM on Government Pipeline Plant
- Revising Specs for Non-Nuclear Density Meters

2018/2019

- New Customers/More Customer Service
- New Pipeline "State" Entry Tool
- Cloud Database/Server Environment
- Dev
  - V3.0, Desktop tools, Management Tools

More 2019

- Personnel Changes
- Pipeline Data Analysis
- Hopper Dredge Utilization Support
- Cycle Logic Revision

Security/Access

- Security Matrix Roles and Access
  - Password Access – Contractor Access

Pipeline Monitoring

- Fully Implemented in 2018
- Government Plant Pilot Monitoring 2015-2017
- Upgrade Gov Plant to Latest DQM SPECS
- Final Spec Versions
- FY18 Private Pipeline Monitoring (SBA Exempt, Required on all Unrestricted projects)

National Dredging Quality Management Program (DQM)

Pipeline Data Flow
Sensor-Based Parameters
(per Compliance Specification)

Pump Sensors
- Pump Vac
- Pump Press
- Density
- Velocity

Position Sensors
- Position
- Heading
- Vert Correction (Tide)
- CH Depth

Discharge Sensors
(radio link)
- Discharge Position
- Discharge Elevation
- Discharge Heading

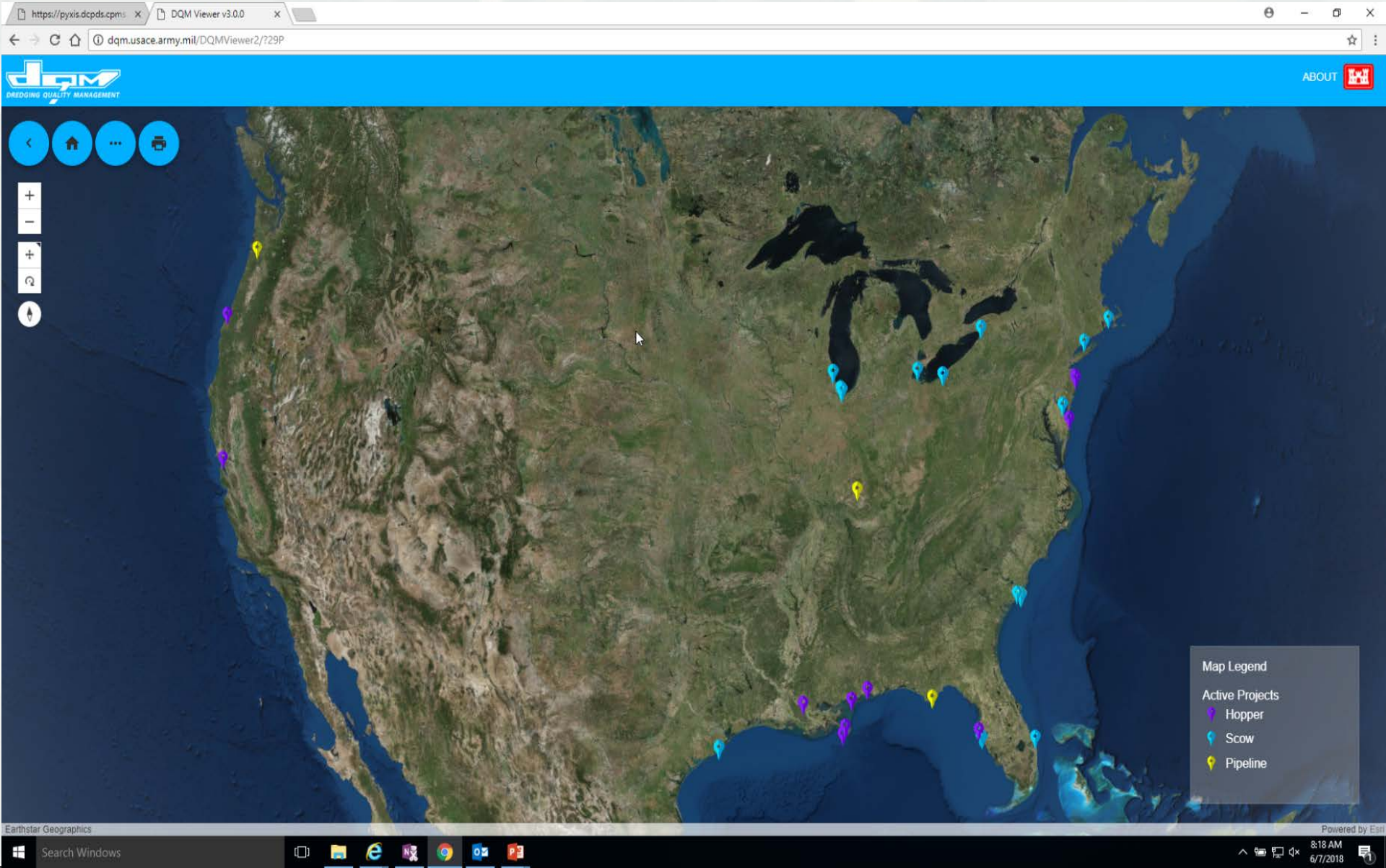
Notes

***Dredge Positioning Computer**—Data is compiled and converted to JSON format

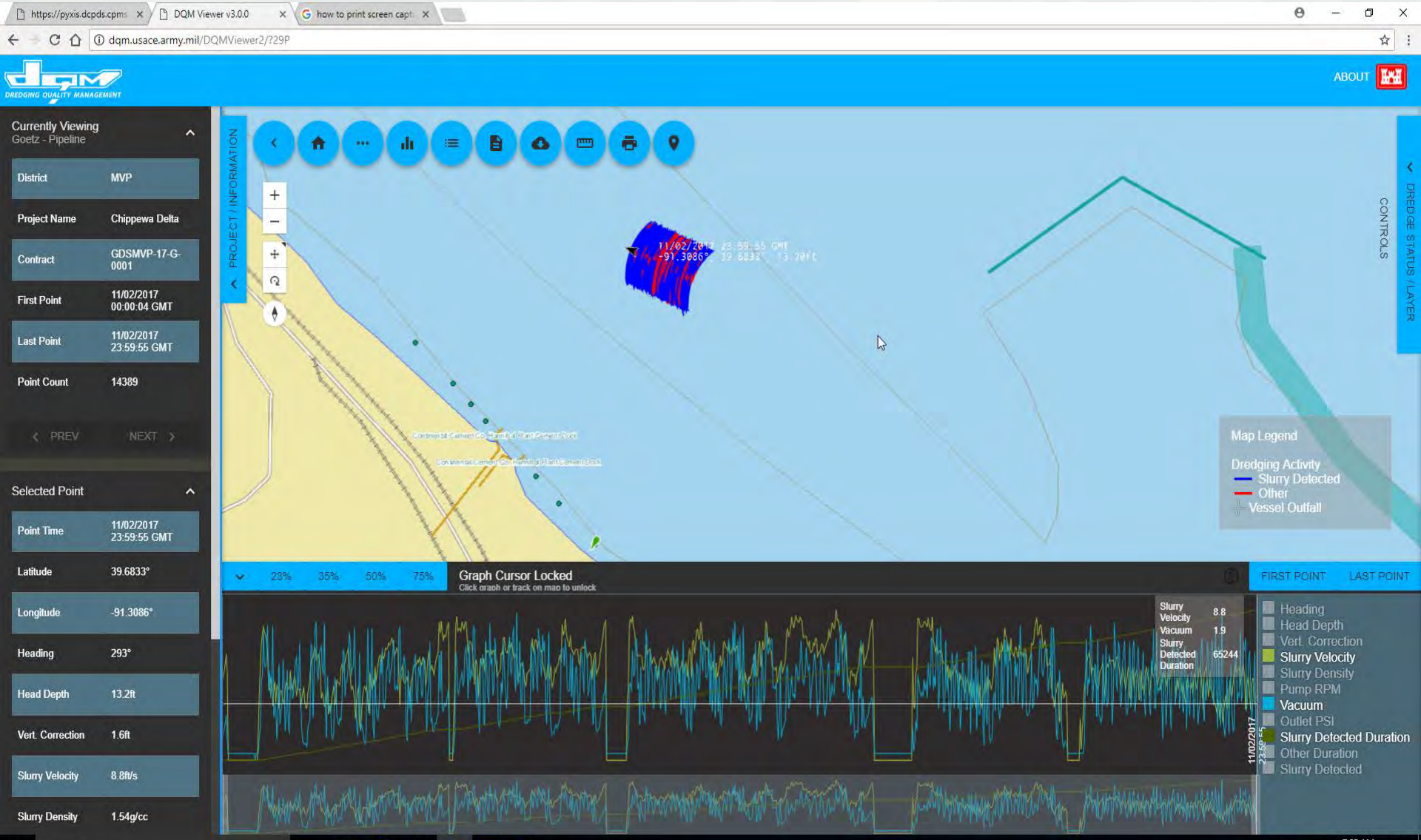
****DQM Onboard Computer**—Minimum Specifications
CPU: Intel/AMD processor; 3 GHz (non-overclocked) clock speed
Hard Disk: 250 GB; internal
RAM: 2 GB
Ethernet Adapter: 10/100 Mbps internal network card; RJ-45 connector
Video Adapter: Supports 1024x768 resolution at 16-bit color depth
Monitor: 17" viewable display; supports 1024x768 resolution at 16-bit color depth
Keyboard: Standard 101-key
Mouse: Standard 2-button
CD-ROM Drive: 16X read speed/8X write speed
Ports: 2 free serial ports (standard 9-pin connectors); 1 free USB port
Cables: Cat-5 cable; standard RJ-45 plugs connecting the network adapter to the network hub; 1 spare cable
Software: Windows 7 Professional (fully licensed); any necessary manufacturer-provided drivers for the installed hardware

DQM On-Board Software (DQMOBS)

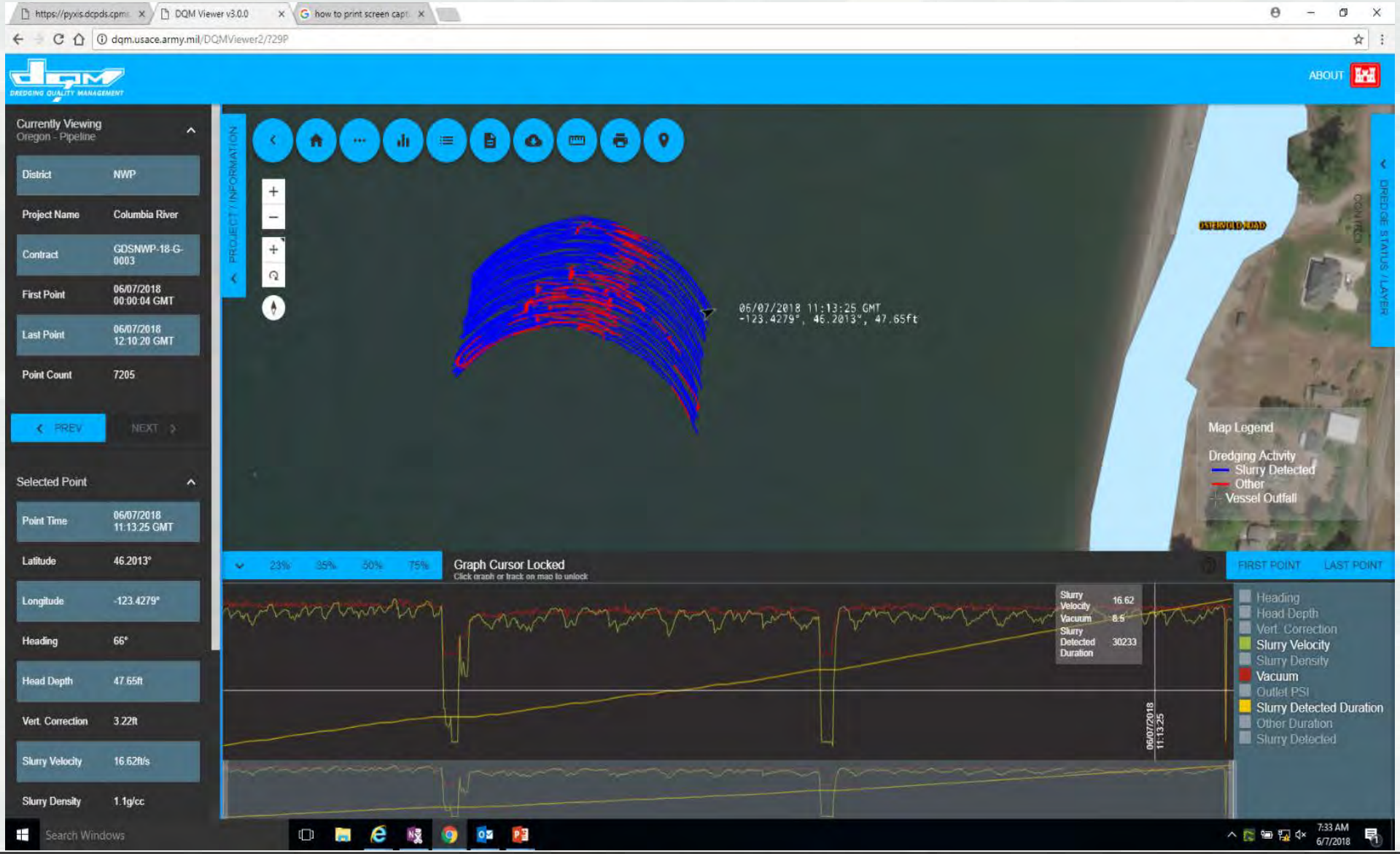
New DQM Viewer



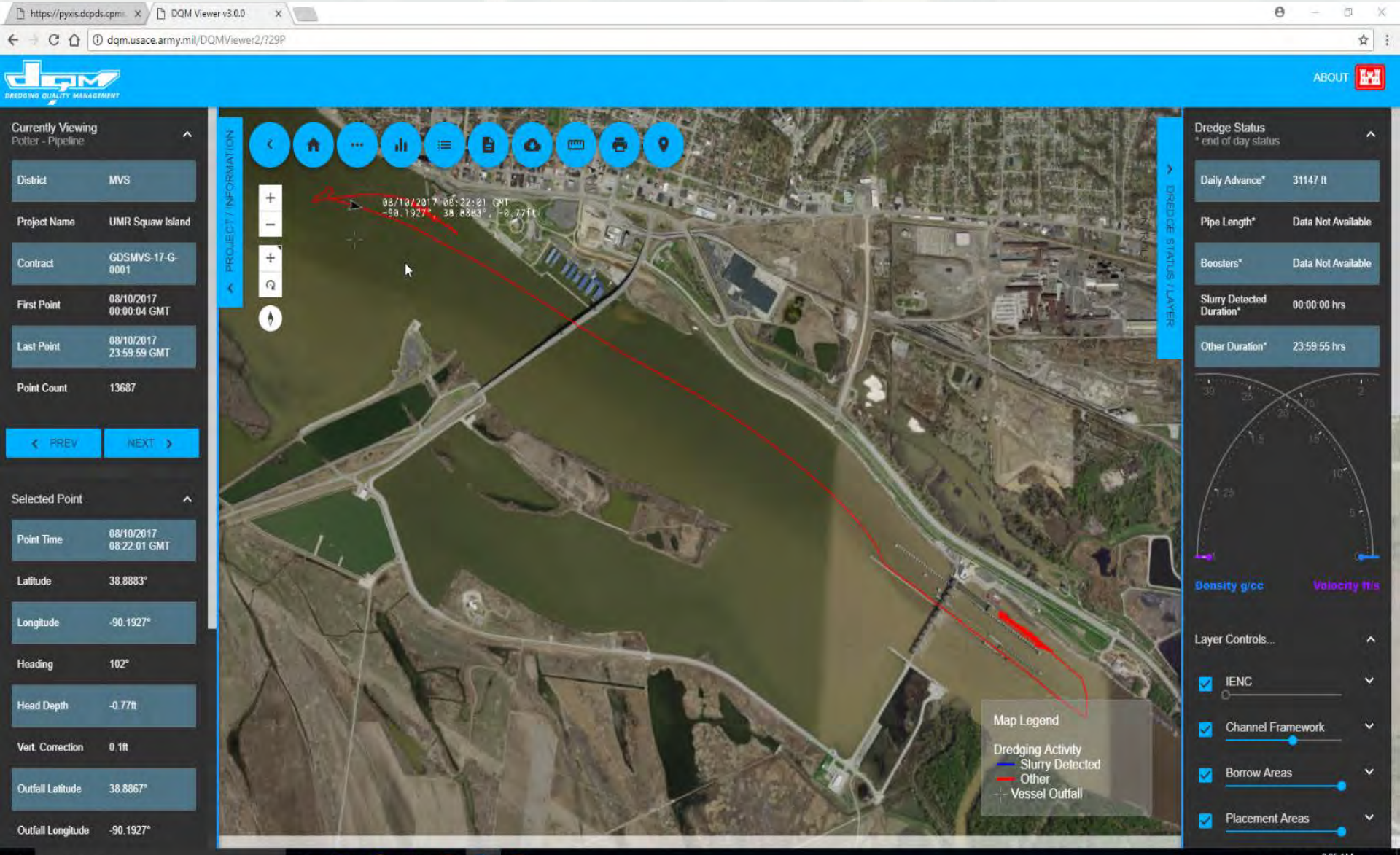
New V3.0 Viewer



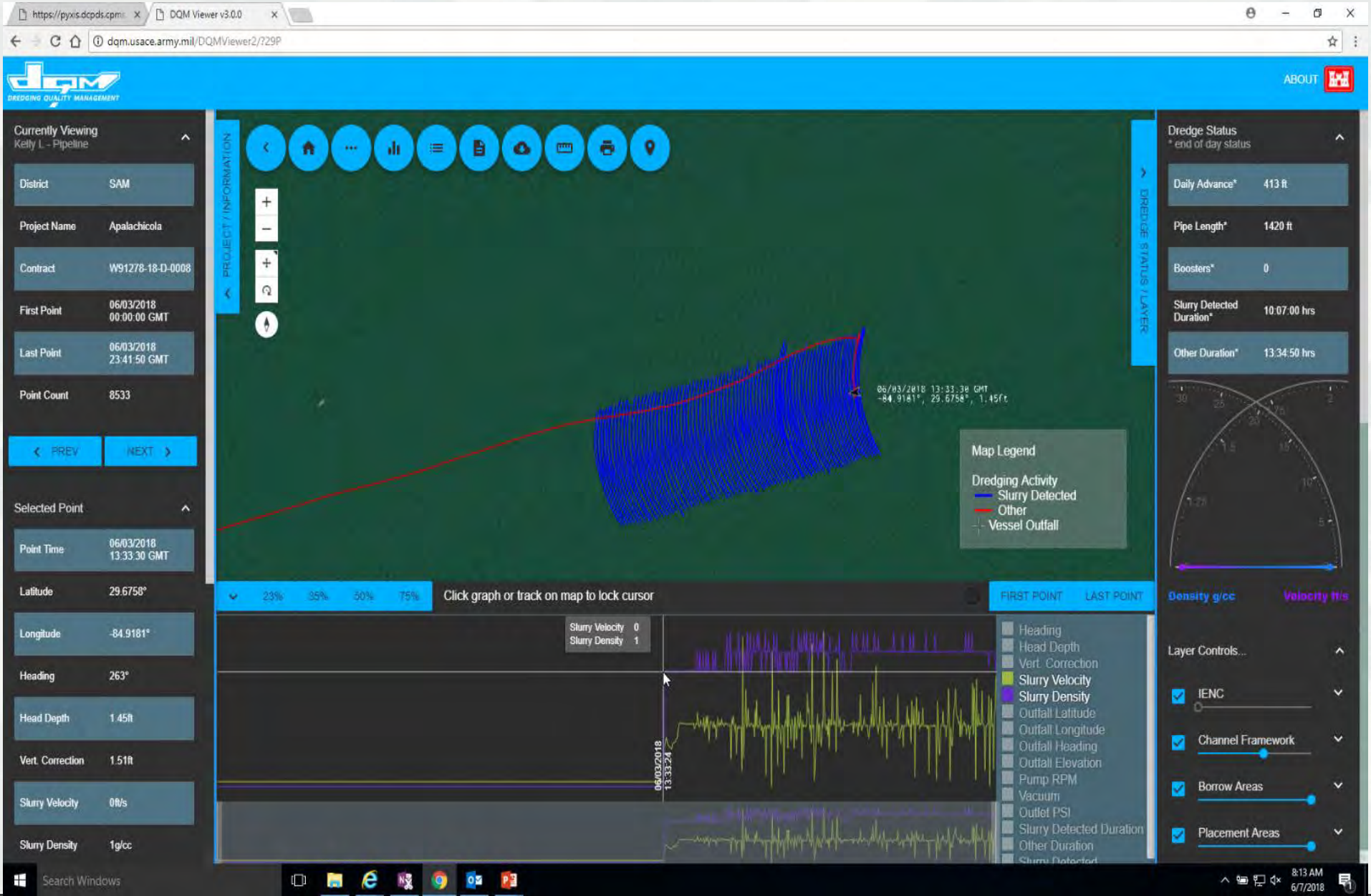
New V3.0 Viewer



New V3.0 Viewer



New V3.0 Viewer



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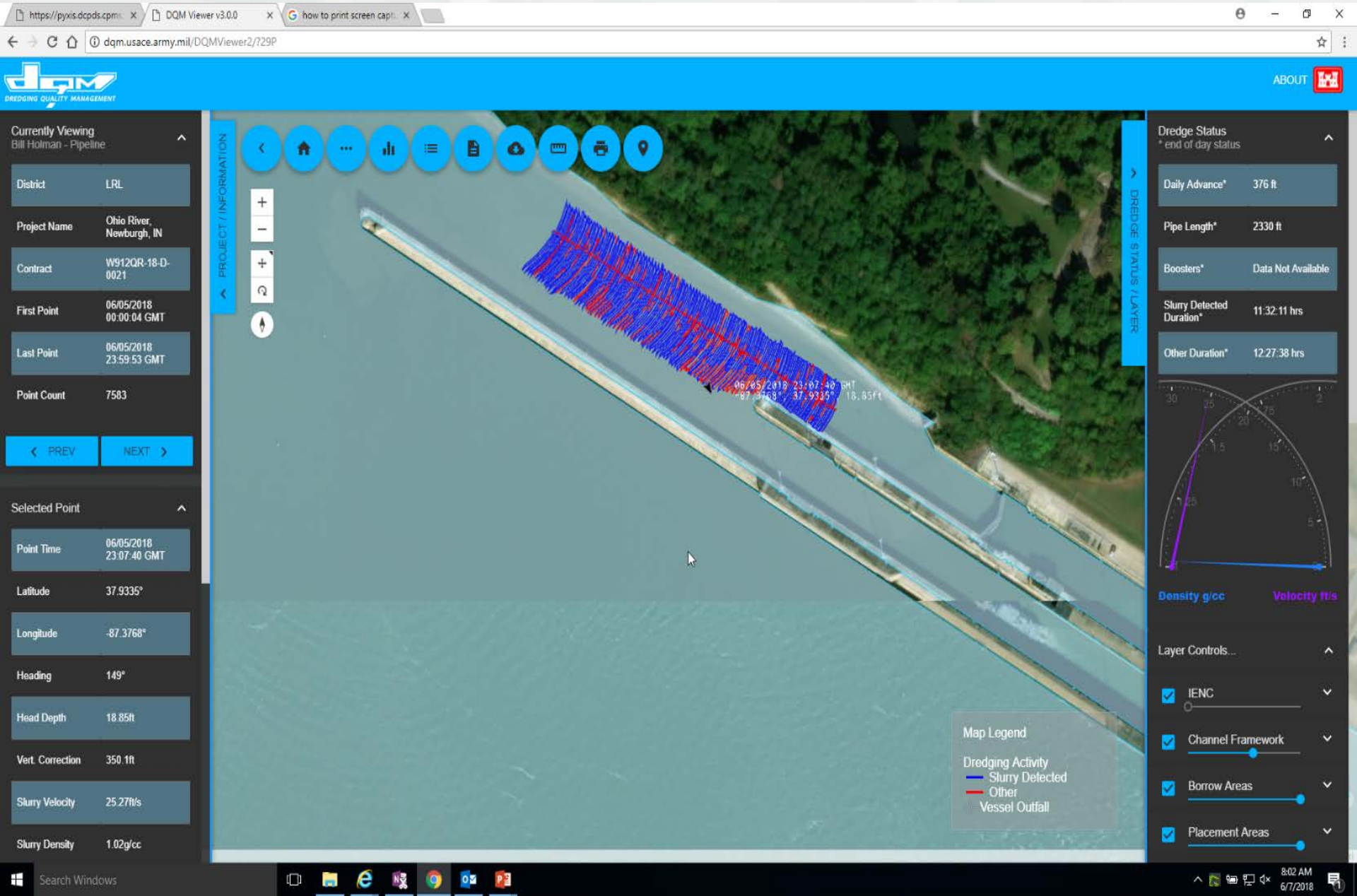

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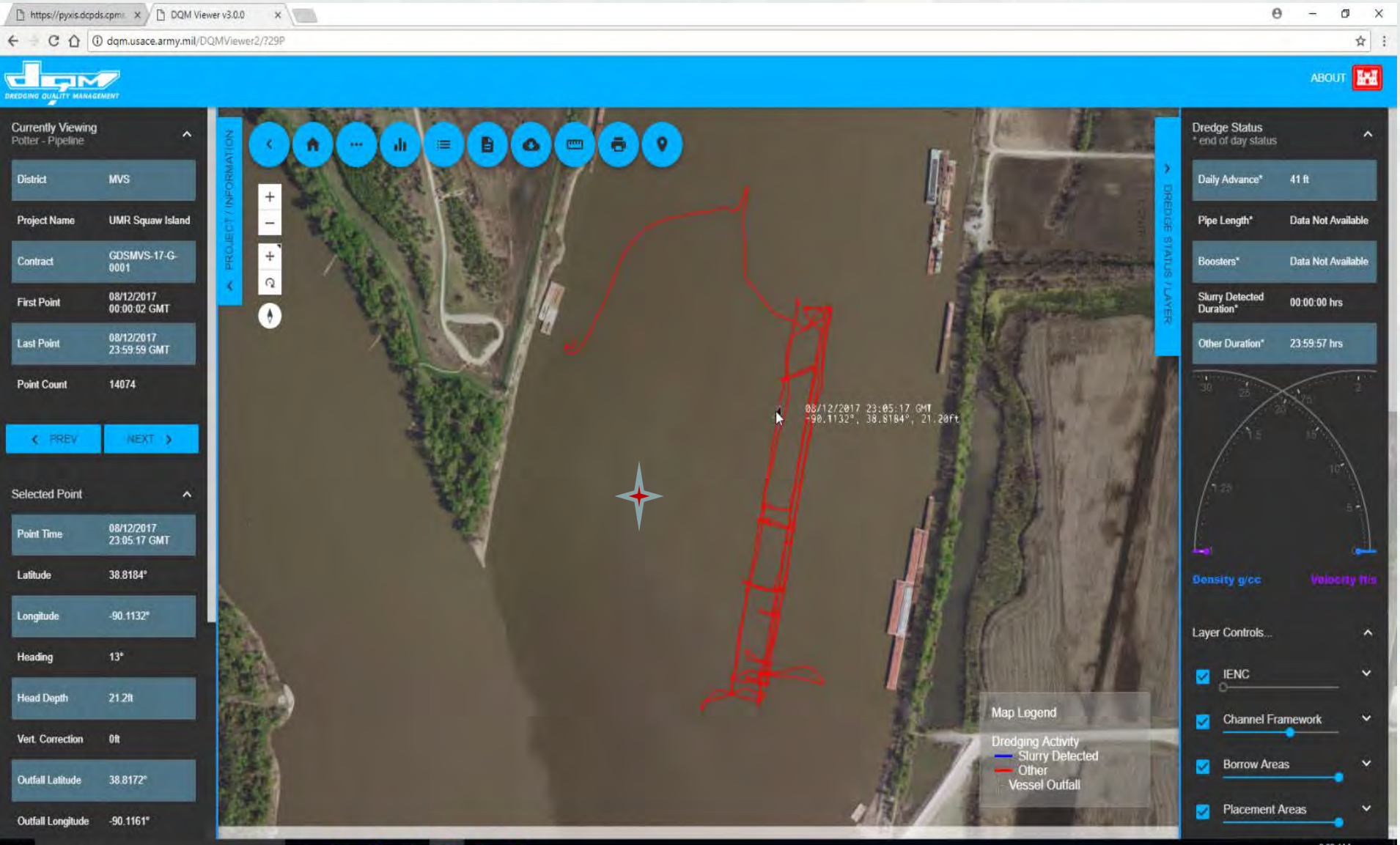
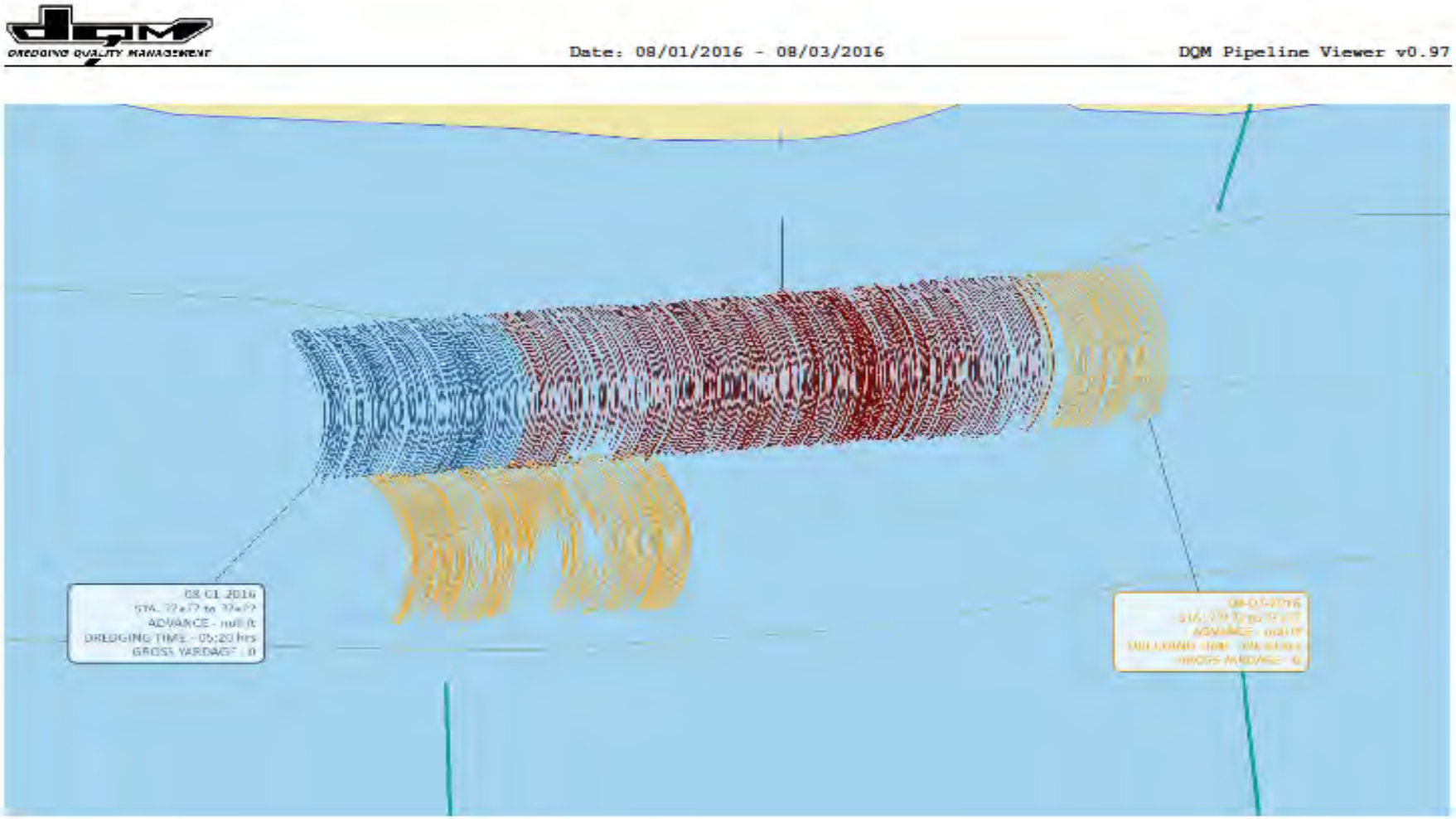


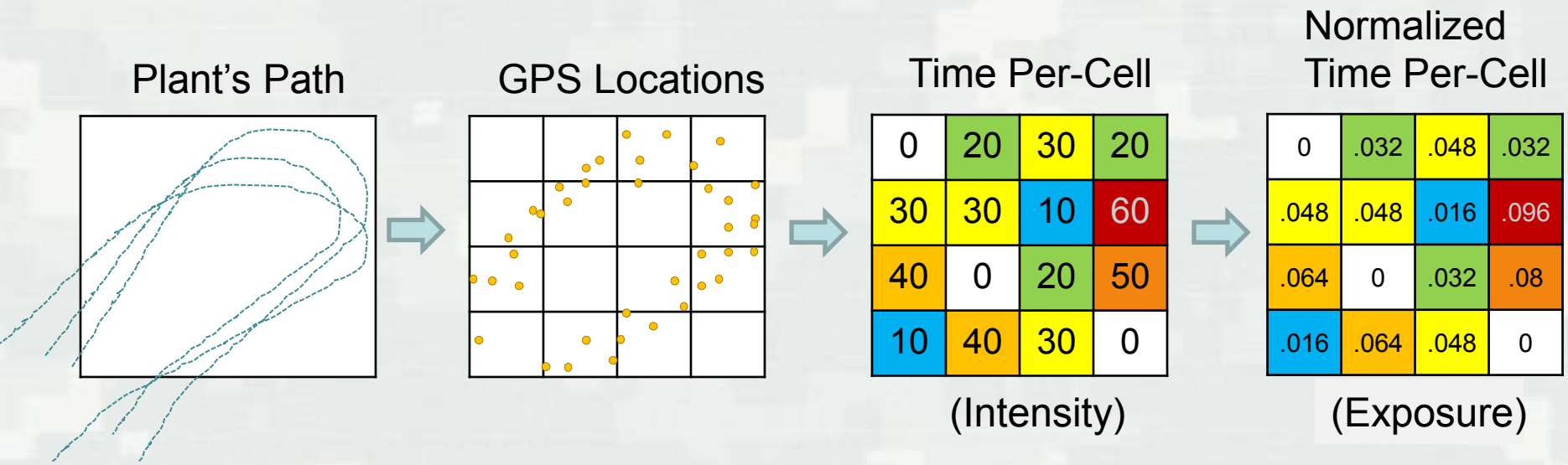
Pipeline Daily Advance Report



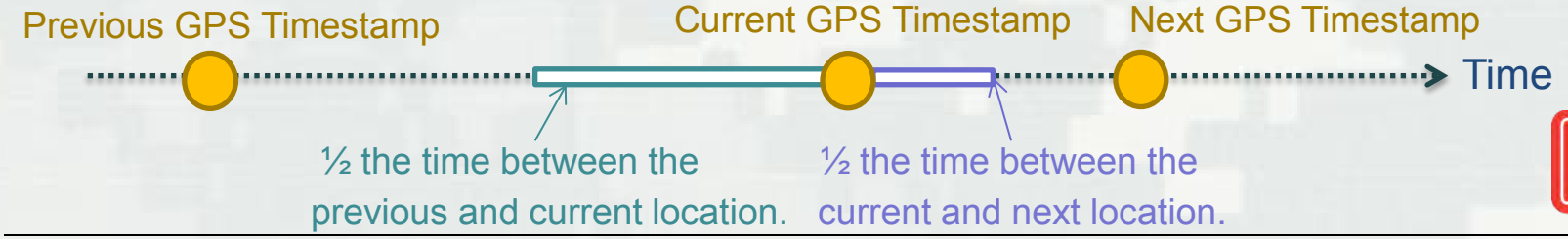
Dredge Intensity Model

- ✓ Software tool which takes the results of the mathematical model and creates products compatible with prominent GIS applications
- ✓ Vessel transit/dredge tracks delineating areas of high traffic or dredge activity
- ✓ Generation of relevant geospatial metadata for the product including processing history sections

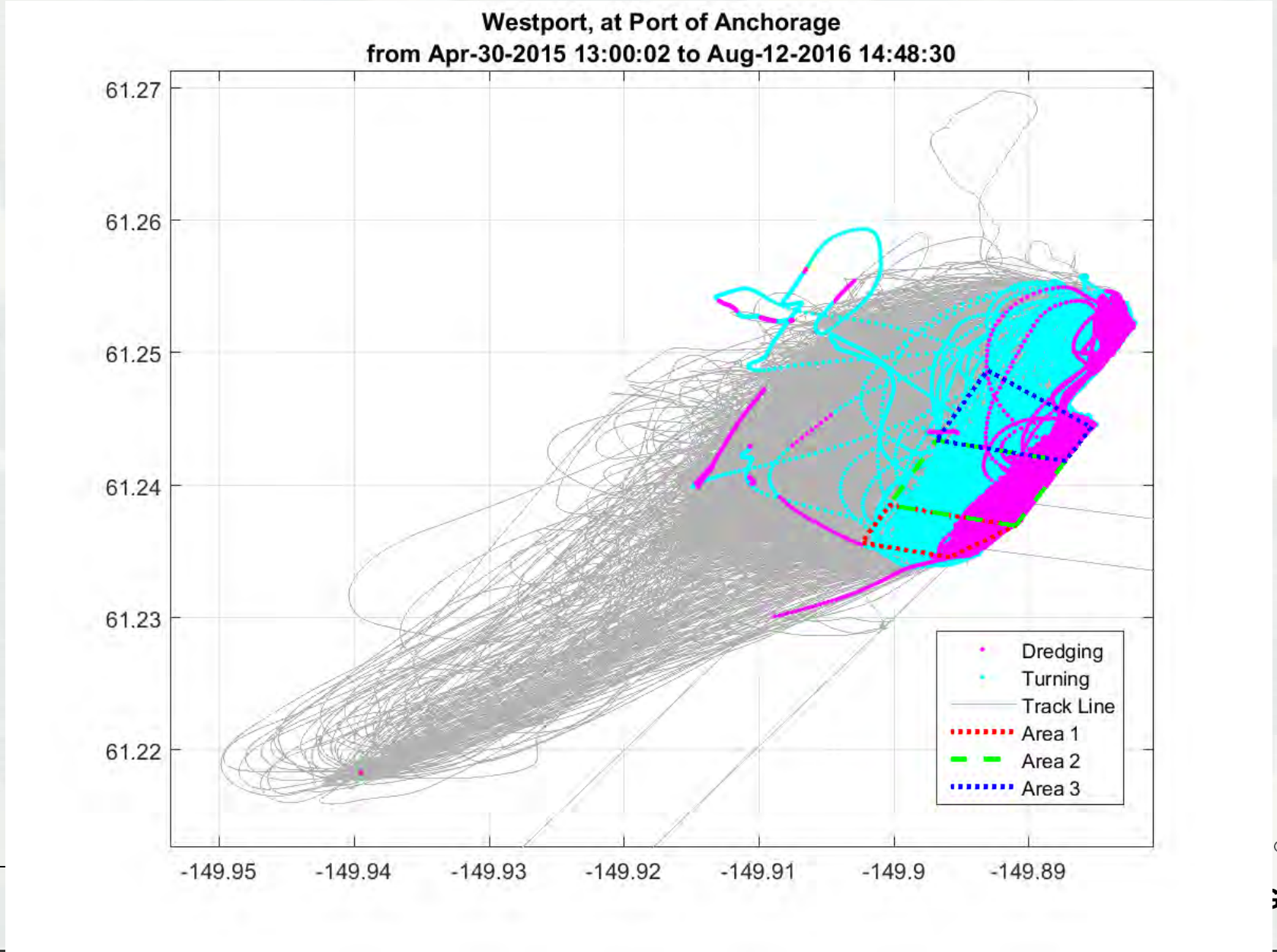
Dredge Intensity Model



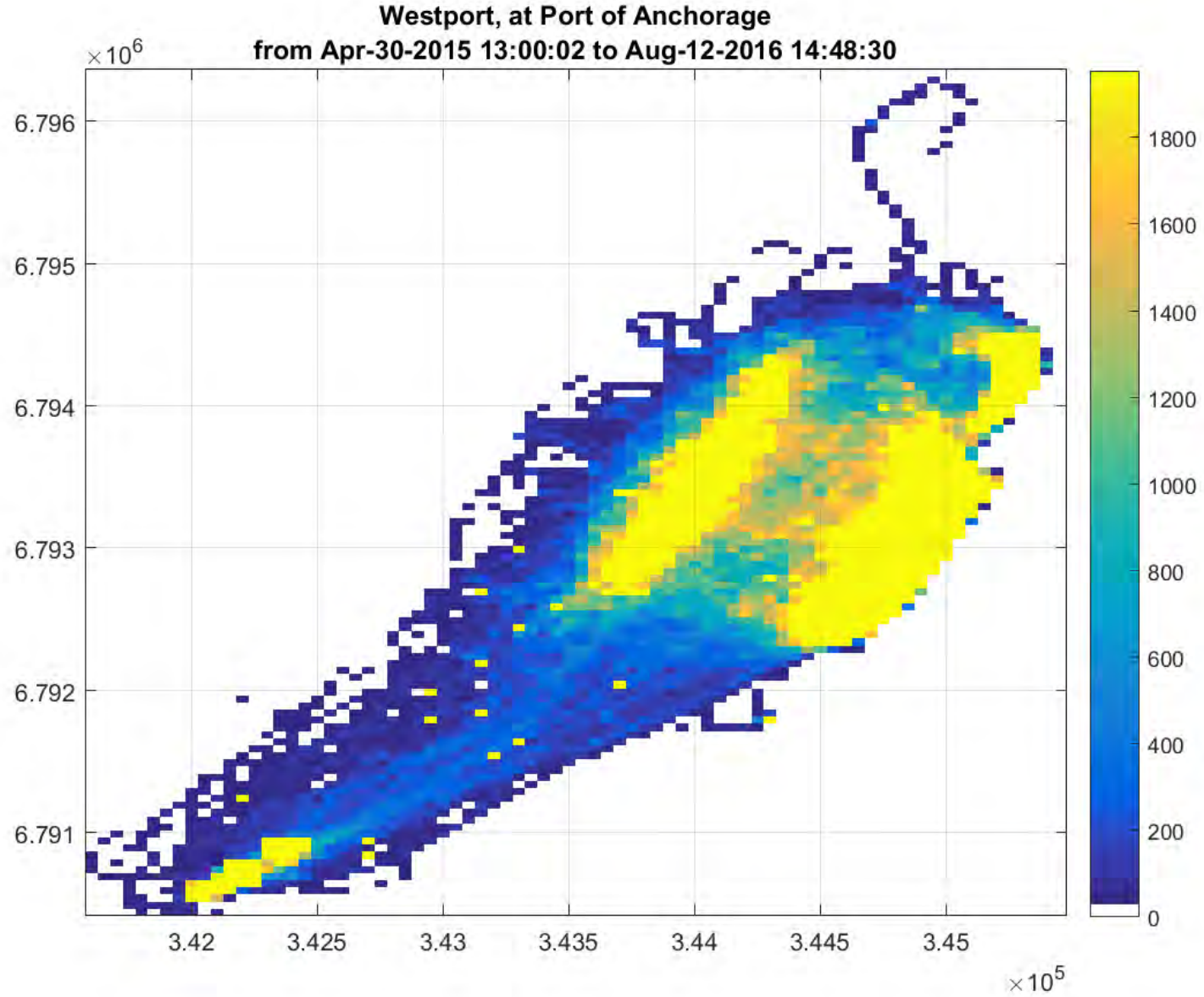
- Time spent at each location is calculated
- GPS locations are converted to UTM, and a grid is constructed
- Time per-location is accumulated within cells of a grid
- Values are normalized based on the cell size, final units are seconds per meter squared.



Westport Tracks & Dredging

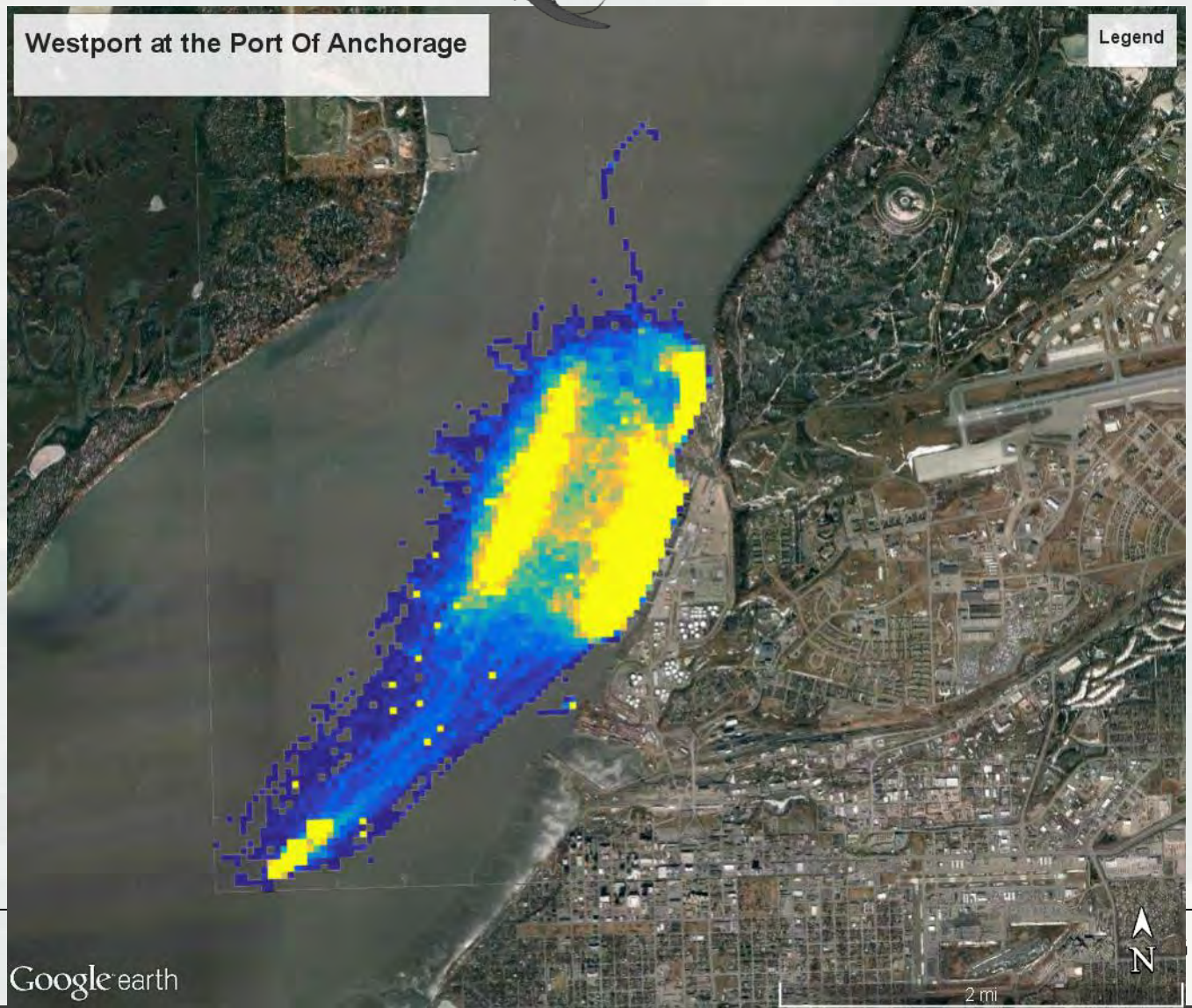


Westport Heat Map



NATIONAL DREDGING QUALITY MANAGEMENT

DQM



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Question/Comments?

NATIONAL DREDGING QUALITY MANAGEMENT

DQM

THE NATIONAL DREDGING QUALITY MANAGEMENT PROGRAM

The DQM Program is a partnership between the Corps and the dredging industry for automated monitoring of dredge activities.

Onboard sensors provide near-real-time data that allows for immediate response to emerging situations.

Districts can use the web-based DQM software to view, analyze, report on, and export dredging data.

The data can be used to improve business practice, ensure environmental compliance, and increase our understanding of dredging science and technology.

http://dqm.usace.army.mil

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