



Port Performance In the Pacific Northwest

Insights for the Maritime Freight Economy

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Port Performance - Project Overview

Up-to-date database and analytical platform for principal US ports

- Dock-level (800+ docks at 70 coastal ports)
- Within-port and cross-port comparative analyses
- Existing Resources:
 - Outdated and/or too aggregated
 - BTS Port Performance
 - World Bank Port Performance Index
 - Paywalled
 - S&P Port Performance, Alphaliner, etc.

• Why Port Performance?:

“Productivity isn't everything, but in the long run it is almost everything.”

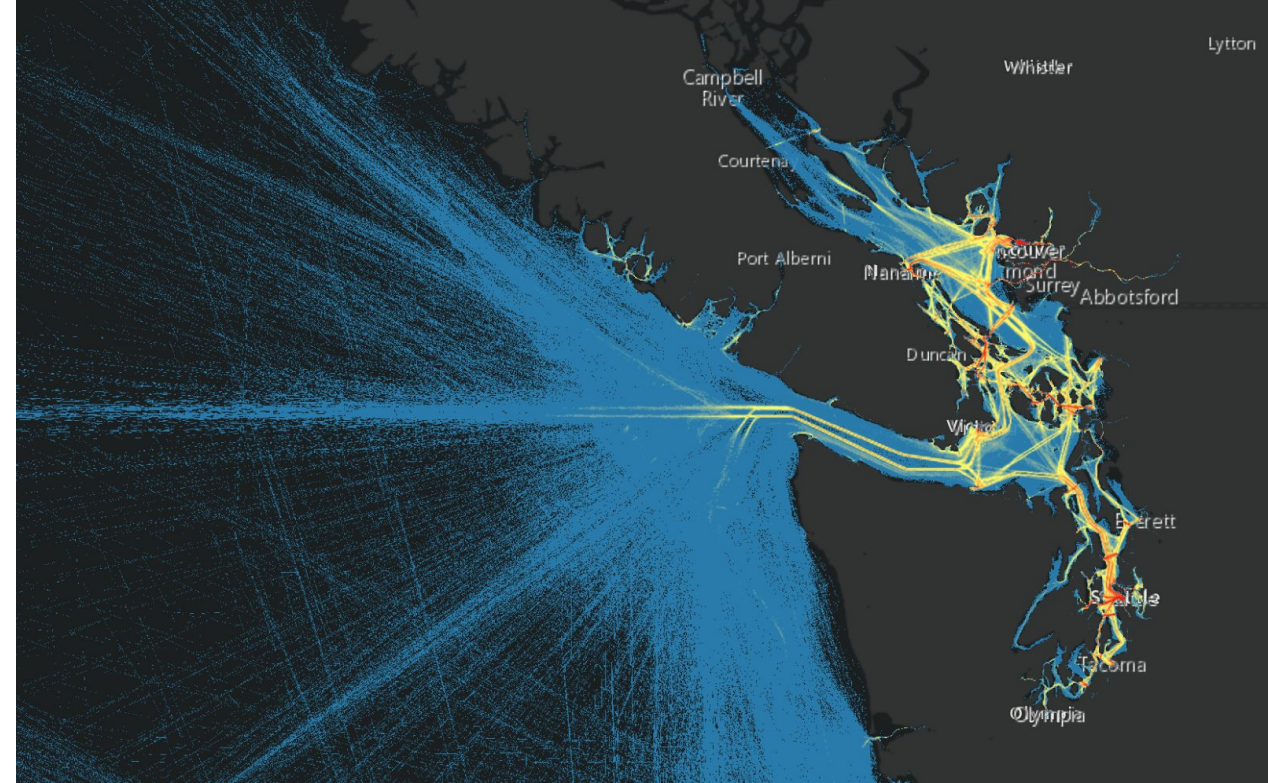
- Decision support (investment planning, etc)
- Bottleneck Identification

• Key Products:

- Dashboard
- Static Reports
- Curated data

Key Data Sources

- Automatic Identification System
 - Vessel location, identification, speed and course, status (docked, underway, anchored)
 - All commercial vessels, typically every minute (>2.5B obs)
- Port and Dock Infrastructure
 - Dock purpose, number of cranes, rail access (number of tracks and service provider)
 - Semi-structured
- Volume Data
 - US Census / Customs
 - BTS (TEUs for some ports)
 - Optional Proprietary Data (PIERS)



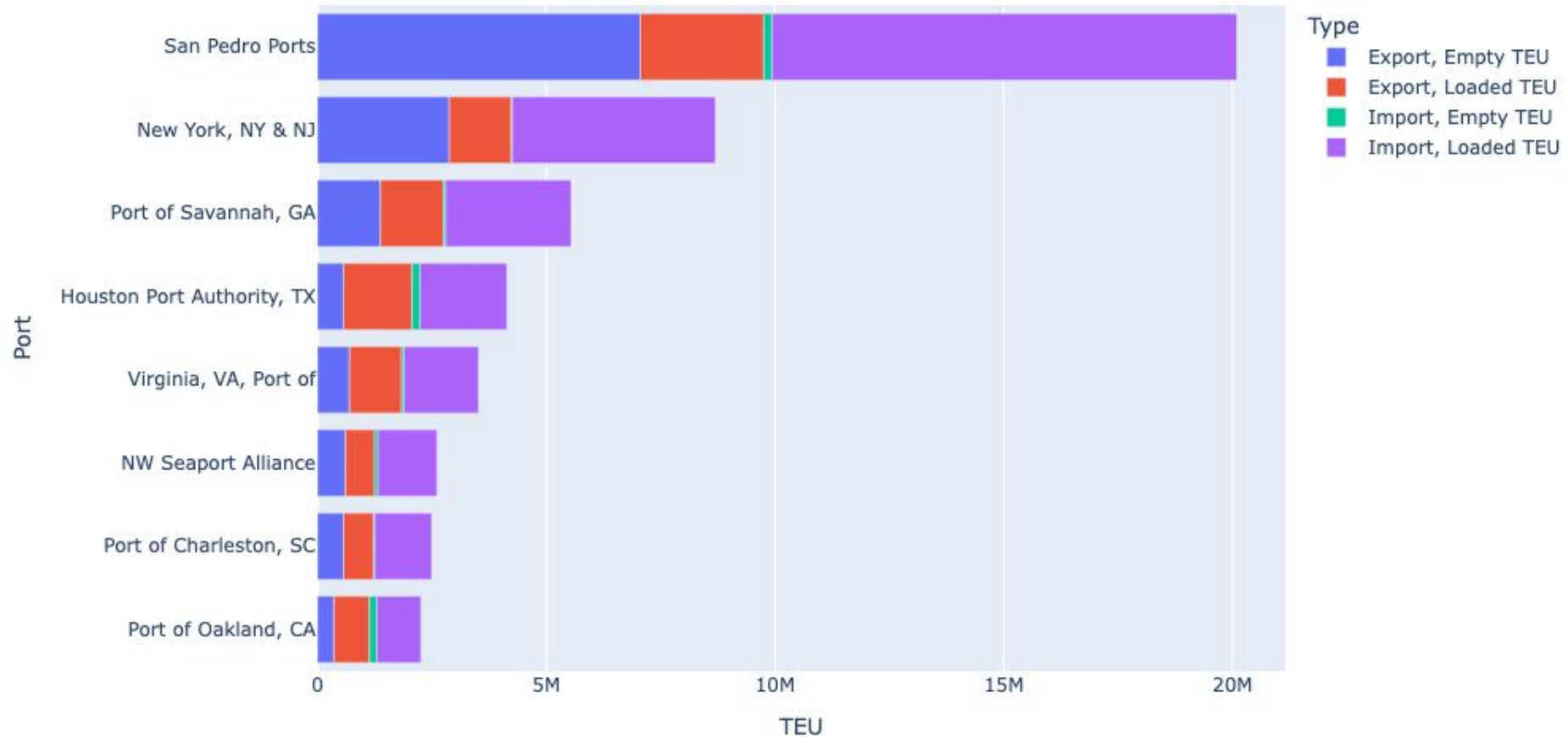
Northwest Seaport Alliance

- Marine cargo operating partnership of the Port of Seattle and Port of Tacoma
- Primary gateway to PNW
- Combined, it's the 6th busiest container port in US
- Recognized as the top-performing West Coast port by Logistics Management in 2024



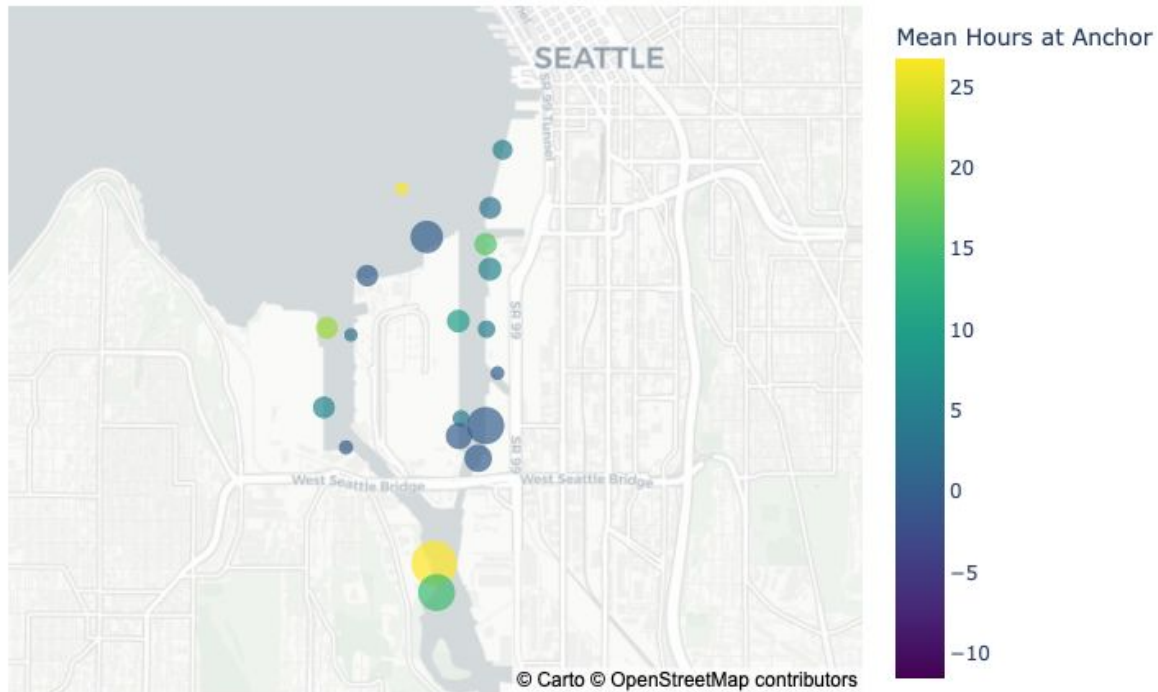
Northwest Seaport Alliance

Container Volume by Port (2024)

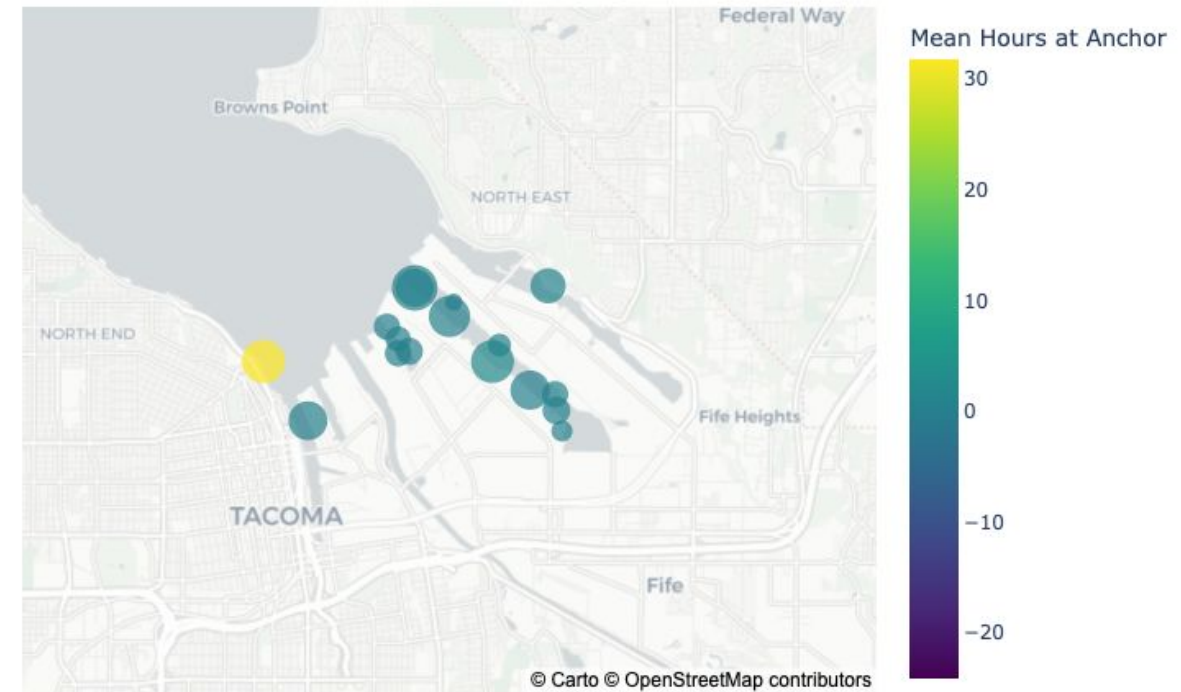


Northwest Seaport Alliance

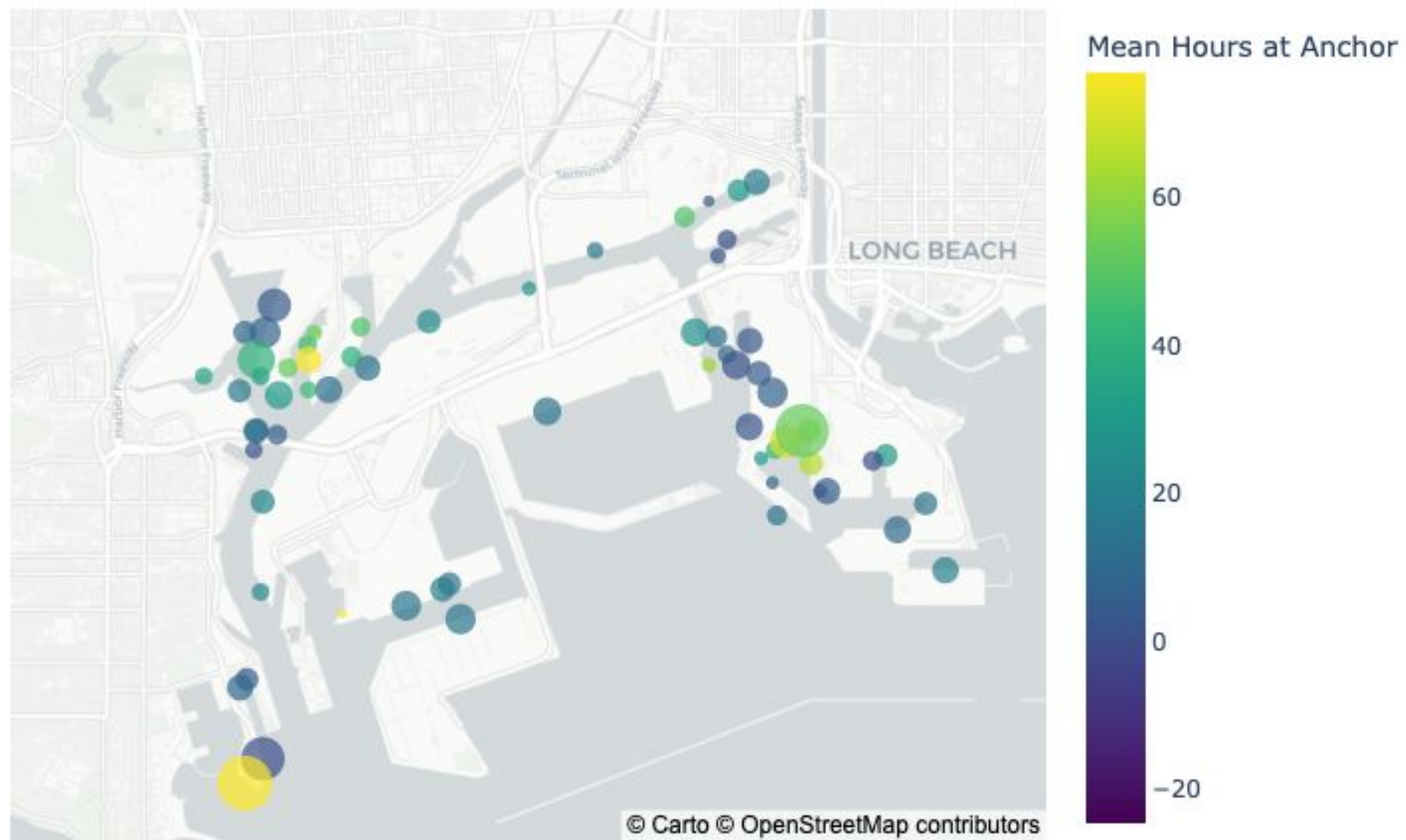
Hours at Berth vs. Hours at Anchor - Seattle



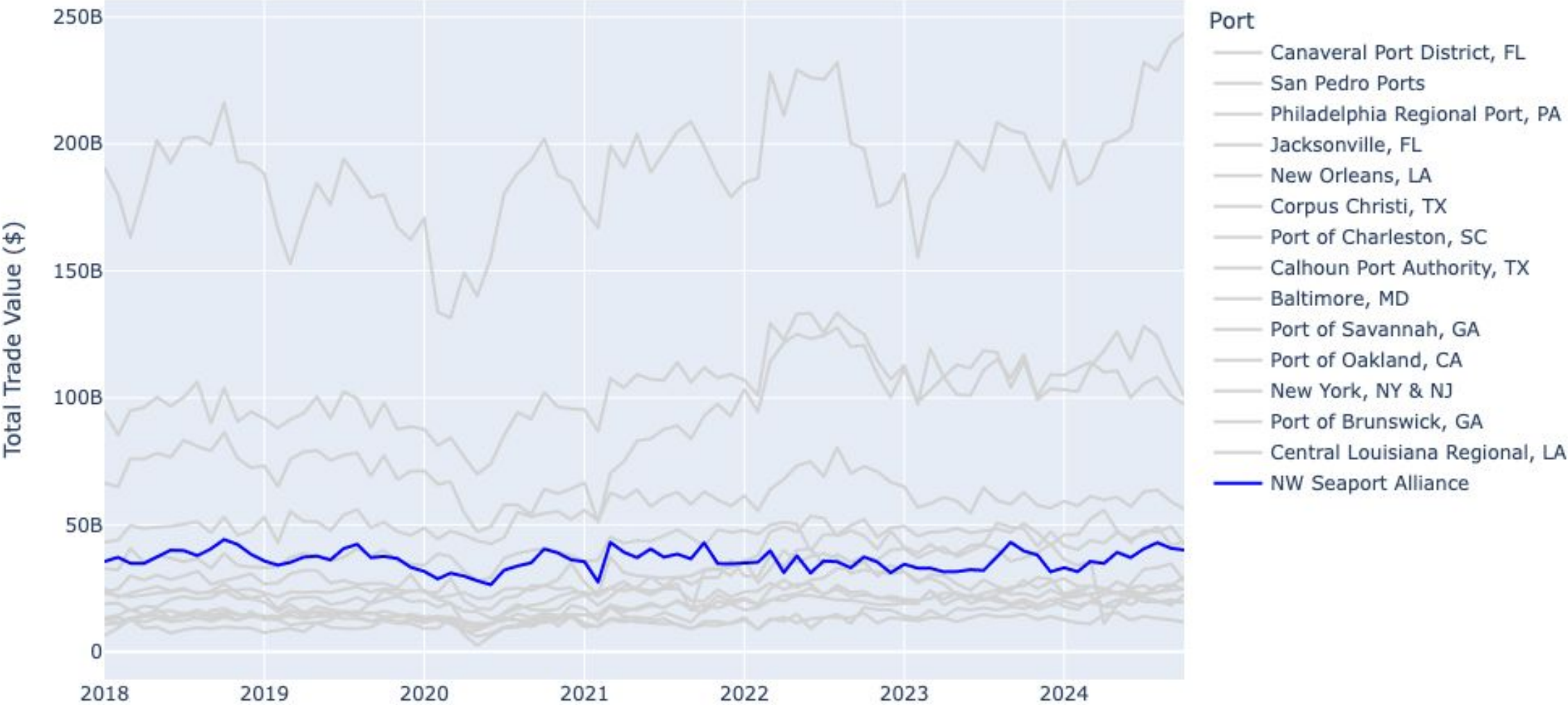
Hours at Berth vs. Hours at Anchor - Tacoma



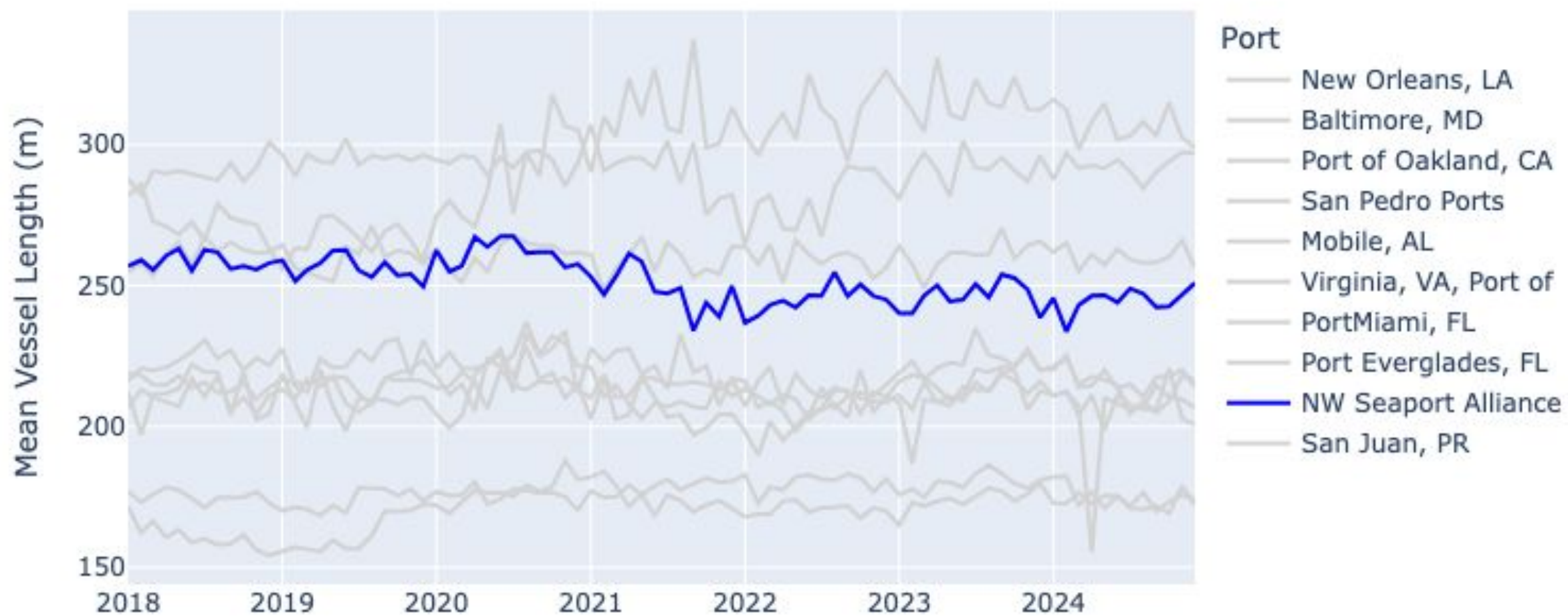
Hours at Berth vs. Hours at Anchor - San Pedro Ports



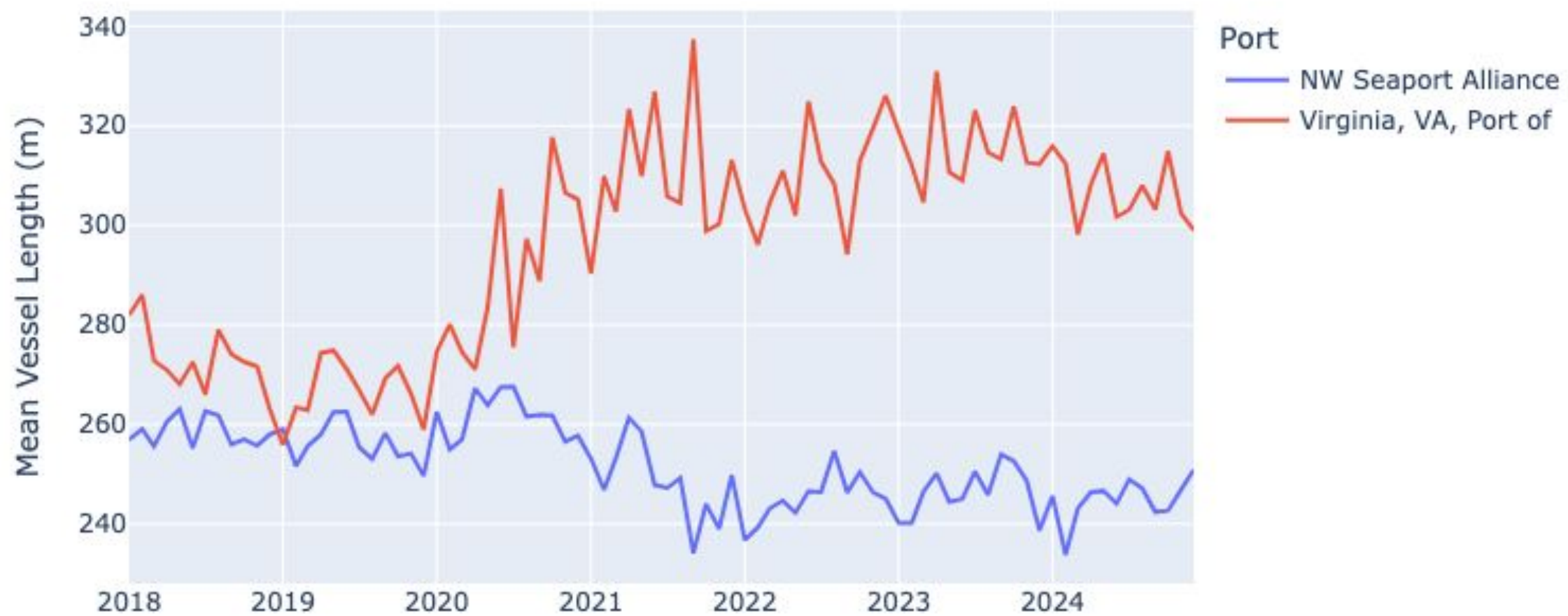
NW Seaport Alliance Trade Value In Context



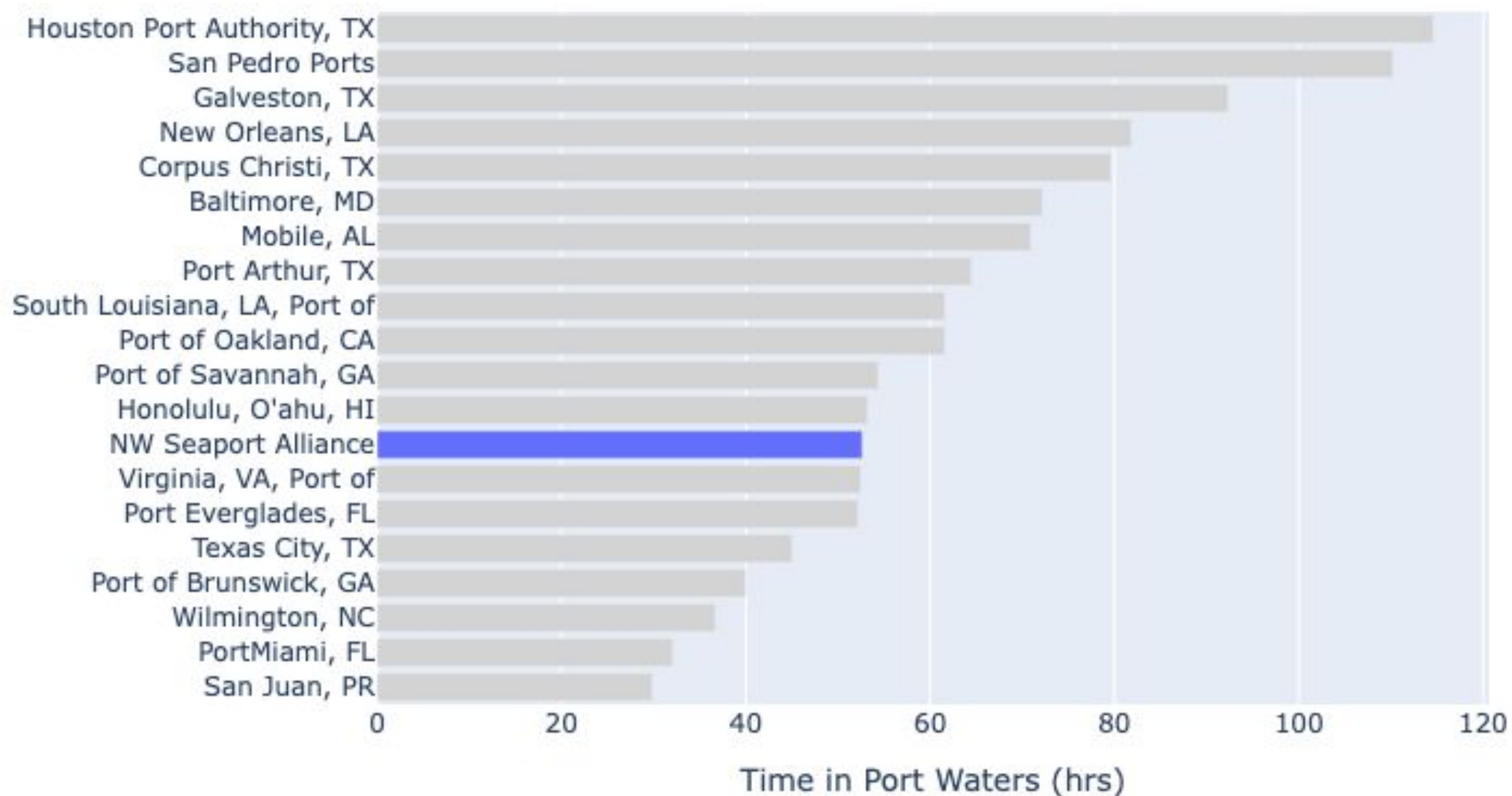
Vessel Size at Top Ports



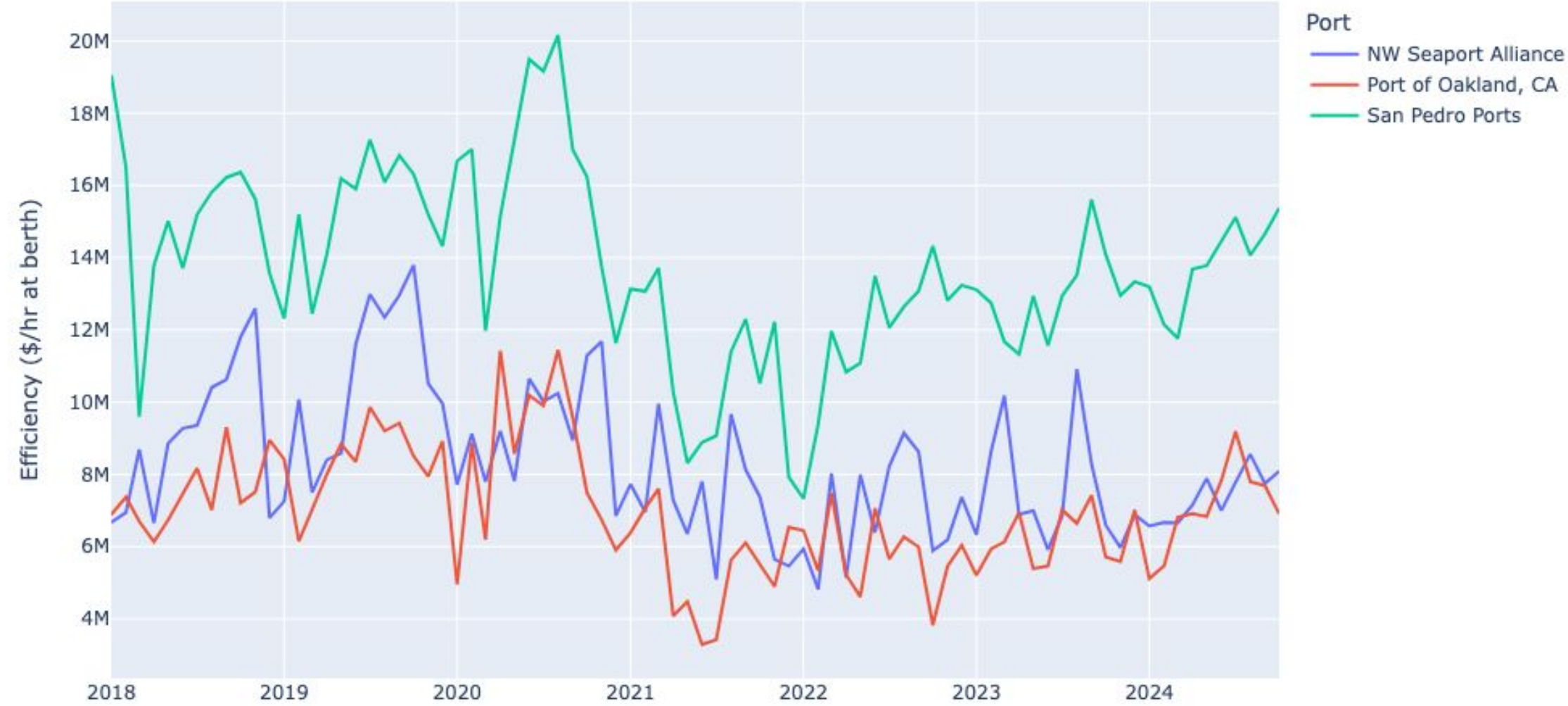
Vessel Size - Diverging Trends



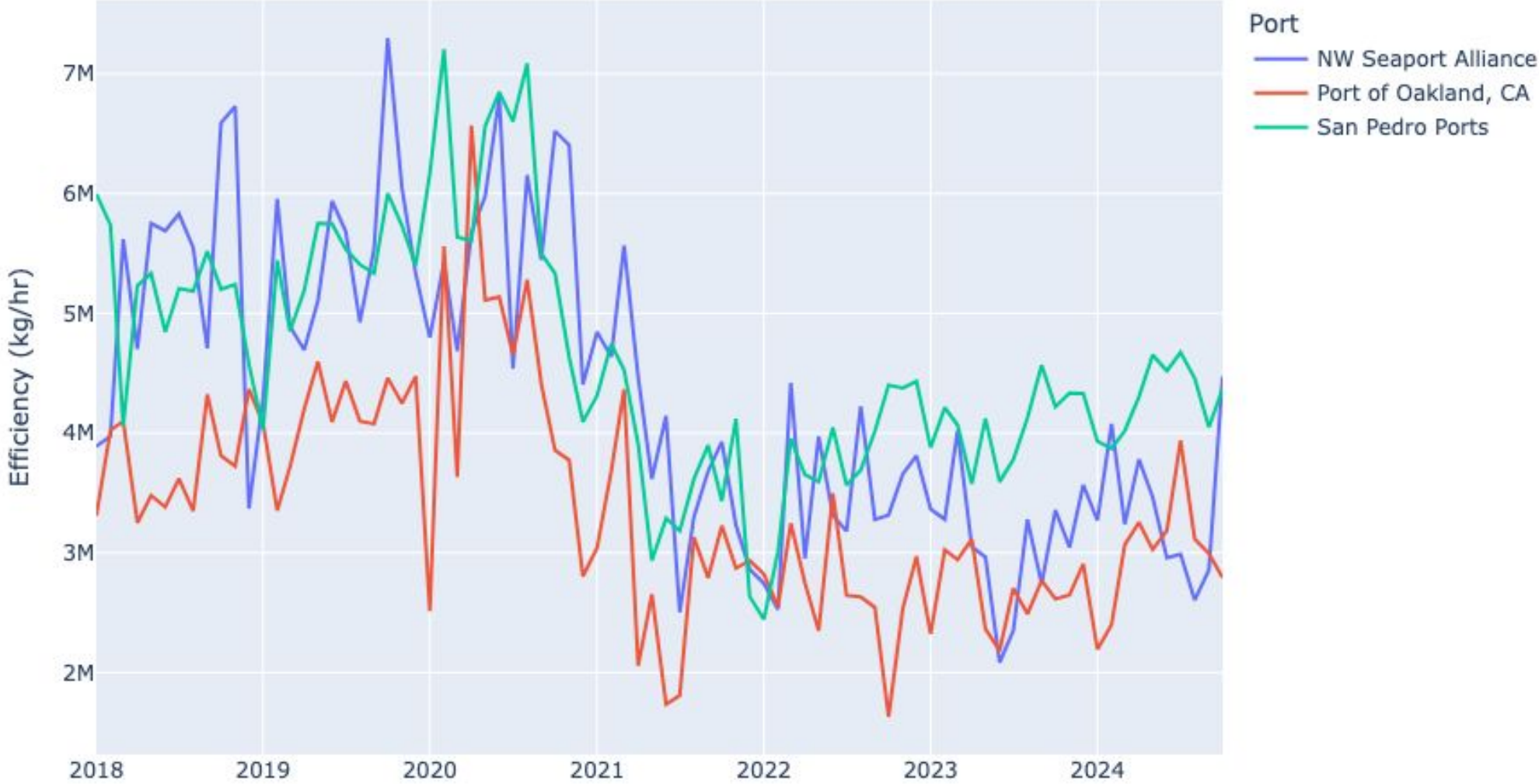
Average Time in Port Waters (Top 20 ports by total calls)



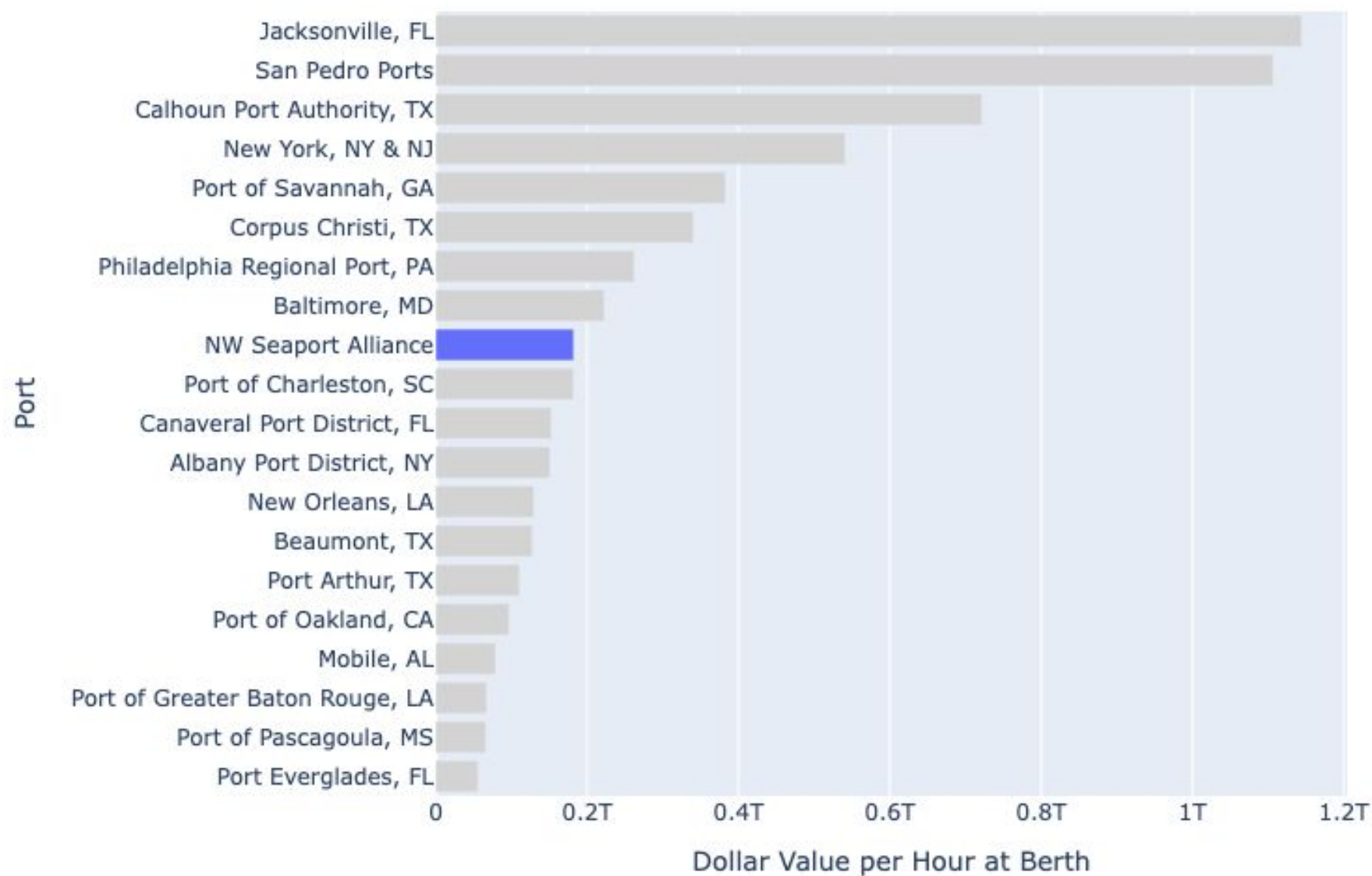
Dollars of Trade Value per Vessel-Hour at Berth at West Coast Ports



Kg Traded per Hour at Berth at Principal Ports



Port Efficiency: Total Trade (\$) per Hour at Berth



Top Performing Docks - NW Seaport Alliance



Dashboard Demo

<https://ses.wsu.edu/trg/ports/>

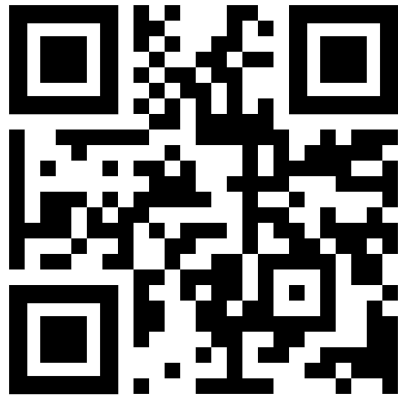
Stakeholder Benefits & Next Steps

- Port Authorities
 - Performance benchmarking and tracking over time
 - Identification of effective bottlenecks
- State and Municipal DOTs
 - Infrastructure investment planning
 - ROI tracking
- Researchers
 - Access to granular, up-to-date, tidy data
- Next Steps:
 - Vessel-type filtering
 - container, bulk, ro/ro etc.
 - Real-time AIS data
 - Historical infrastructure data
 - Dock-level volumes
 - Breakouts by Commodity Types
 - Incorporate financial data (port fees per terminal, etc)
- Potential Future:
 - Freight/Inland data integration



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- WSU's School of Economic Sciences
- Data-focused economists and transportation professionals with expertise in:
 - Research
 - Planning
 - Economic Impact Analysis
 - Applications and Decision-Support Tools
 - Professional Services



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Thank You!