



PORT OF LAKE CHARLES

LAKE CHARLES HARBOR & TERMINAL DISTRICT

Channel Dredging



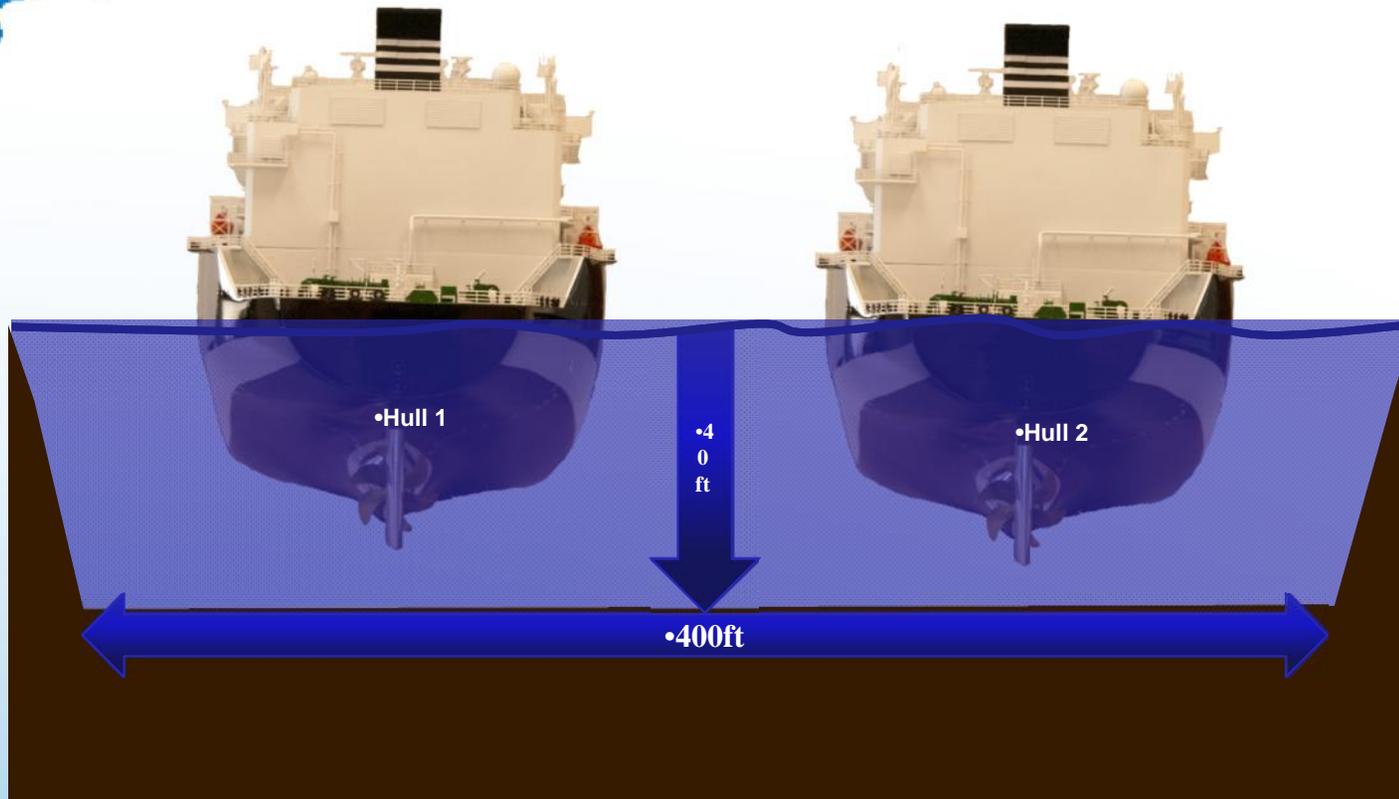
A User's
Perspective



**Nothing is impossible to the
person who doesn't have to
do it!**



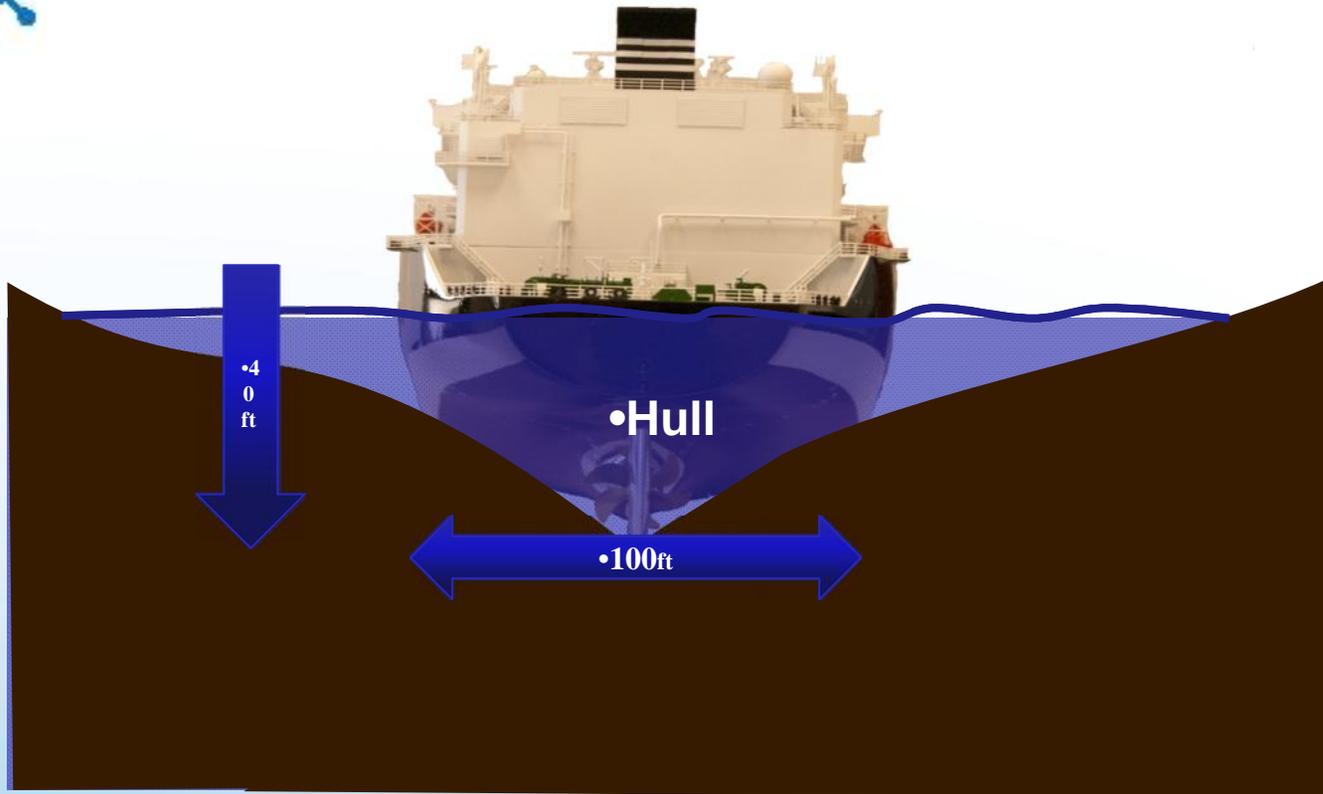
Calcasieu Ship Channel Authorized Project dimensions: (400ft wide, 40ft deep)



\$30-\$40 million (in 2014 dollars) needed annually to maintain congressionally authorized dimensions for safe, reliable, and environmentally sound operations on the Calcasieu Ship Channel.



Calcasieu Ship Channel Less Than Project dimensions: (400ft wide, 40ft deep)

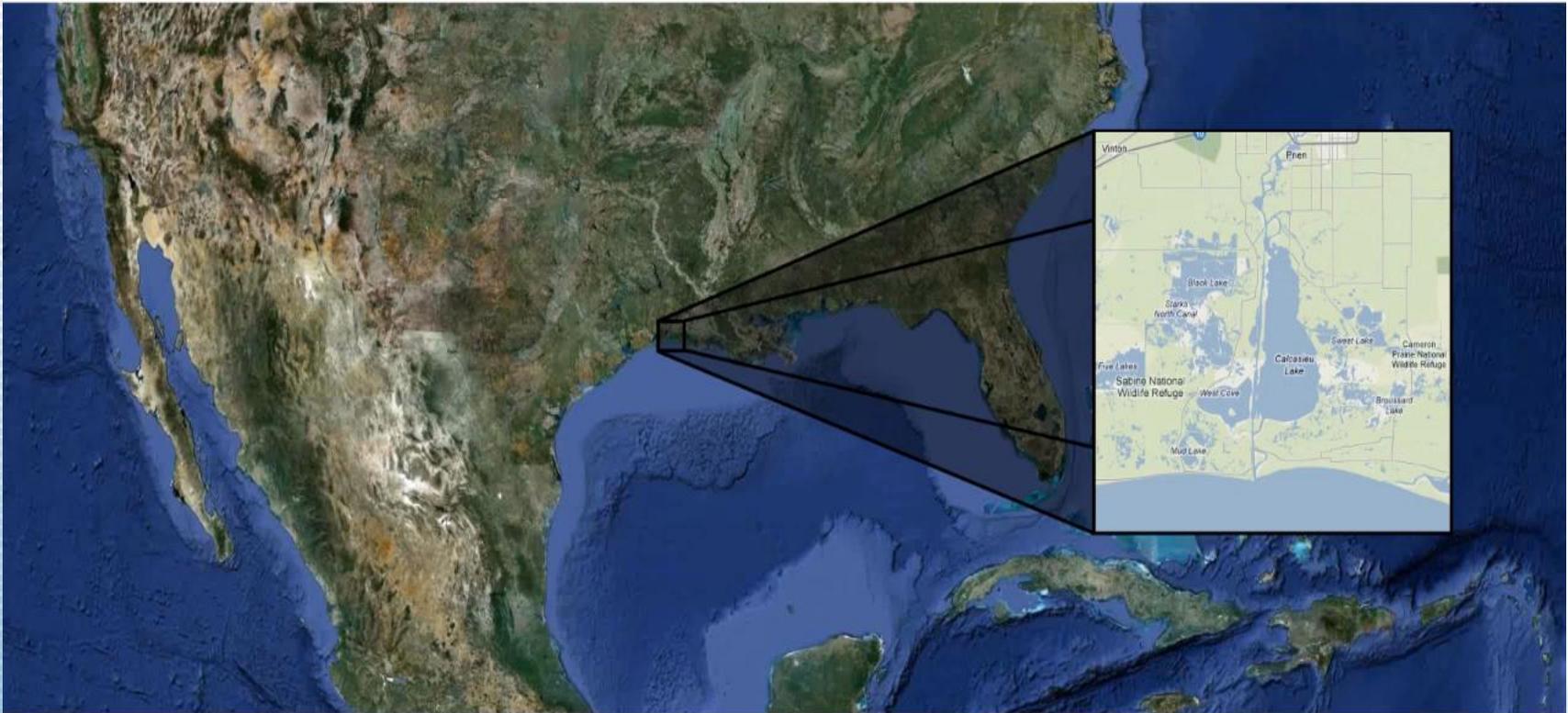


\$30-\$40 million (in 2014 dollars) needed annually to maintain congressionally authorized dimensions for safe, reliable, and environmentally sound operations on the Calcasieu Ship Channel.



Calcasieu Ship Channel Traffic Study

Calcasieu Ship Channel Traffic Study





Traffic Study Dredging Analysis

Source: Ausenco Traffic Study

In the Base Case, the channel was assumed to be properly maintained and dredged to its congressionally authorized dimensions. The impact of insufficient dredging was investigated in two scenarios:

- **Case 1A: the moderate scenario.** The channel width was reduced to 250 ft or less (such that no vessels were able to pass on the Inner Channel) and **the depth was reduced by roughly 1 ft** (such that the boarding windows closed at the jetties 1 hour earlier than normal).
- **Case 1B: the more severe scenario.** The channel width was reduced to 250 ft or less (such that no vessels were able to pass on the Inner Channel) and **the depth was reduced by roughly 2 ft** (such that the boarding windows opened at the jetties 2 hours later and closed 1 hour earlier than normal).



Estimated Change in Vessel Charter Costs for Case 1A and Case 1B in 2023

- Case 1A -- 1 foot draft reduction
- Case 1B -- 2 foot draft reduction

Vessel Type	Number of Vessel Calls	Average Change in Wait Time (h/vessel)		Estimated Change in Charter Cost (M\$/y)	
		Case 1A	Case 1B	Case 1A	Case 1B
Large LNG	645	2.8	12.5	\$7.6M	\$33.7M
Small LNG	190	<0.1	-0.2	<\$0.1M	(\$0.1M)
Deep Draft (Laden Inbound)	321	0.6	1.5	\$0.2M	\$0.4M
Deep Draft (Laden Outbound)	50	1.4	8.2	\$0.1M	\$0.3M
Wide	478	<0.1	-0.3	<\$0.1M	<\$0.1M
Narrow	499	1.4	1.1	\$0.1M	\$0.1M
Total	2,183			\$8.0M	\$34.4M

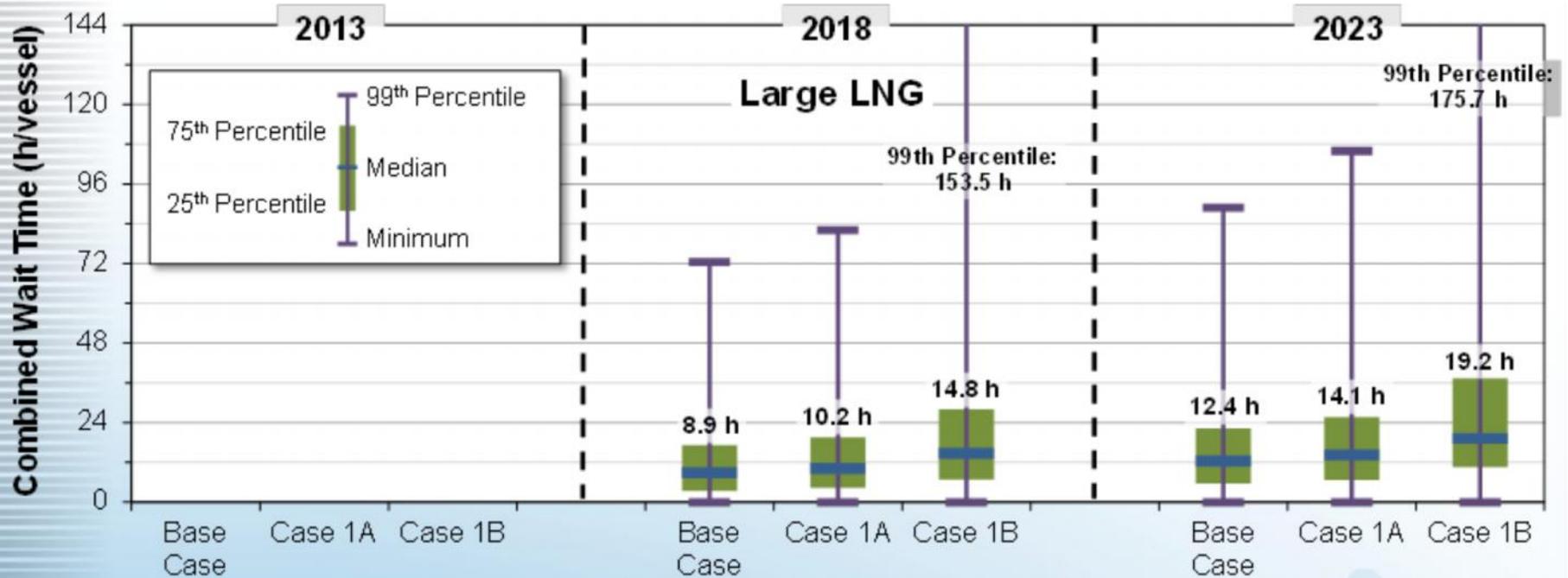
The overall economic impact of insufficient dredging on the future channel operations would likely be much greater than just these charter costs – for example, the **terminals would have additional costs due to delayed deliveries** or shipments. Since the charter cost increases alone are already high, this case **emphasizes the economic importance of sufficient dredging to the channel operations.**

Charter Costs are a proxy for total Costs. Note the **Exponential Increase** in Costs

(Source: Ausenco Traffic Study) * Note that “<\$0.1M” signifies a negligible increase or decrease to charter costs.



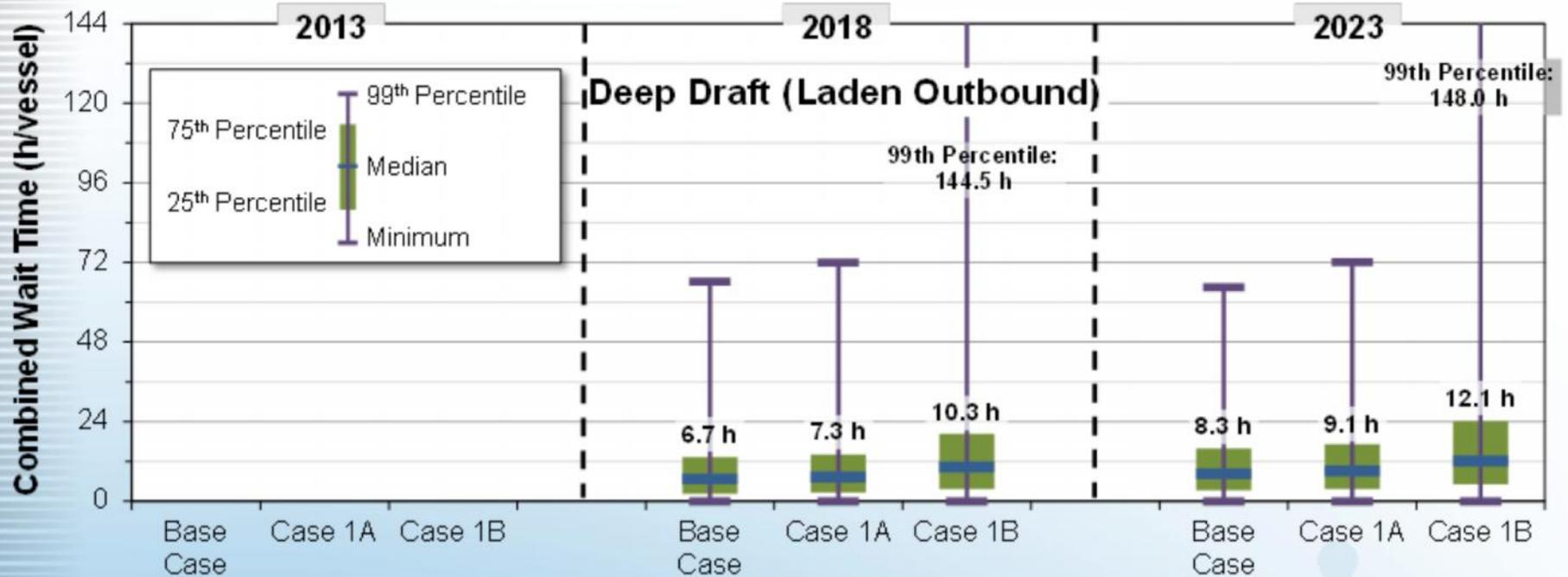
Draft Reductions Delay LNG Vessels



Source: Ausenco Traffic Study



Draft Reductions Delay Tanker Vessels



Source: Ausenco Traffic Study



Dredging Impacts Recovery from Weather Events

Large LNG carriers and Deep Draft vessels were impacted most significantly by insufficient dredging because of the *direct impact on the boarding windows*. For example, the 99th percentile wait times for these vessels more than doubled.

Such increases indicate that *insufficient dredging dramatically affected the ability of the channel to handle large vessel traffic when it experienced heavy weather events*.



Weather Events

- **Boarding Windows (tides)** – Deep draft vessels
 - Year round
- **Wind** – All vessels (LNG has lower wind threshold)
 - September through May – 3% to 16% of the time
- **Visibility** – All vessels
 - October through April – 6% to 14% of the time
- **Low Water Events** – All vessels
 - November through February – 13% to 16% of the time
- **Unpredictable Events**

Source: Ausenco Traffic Study

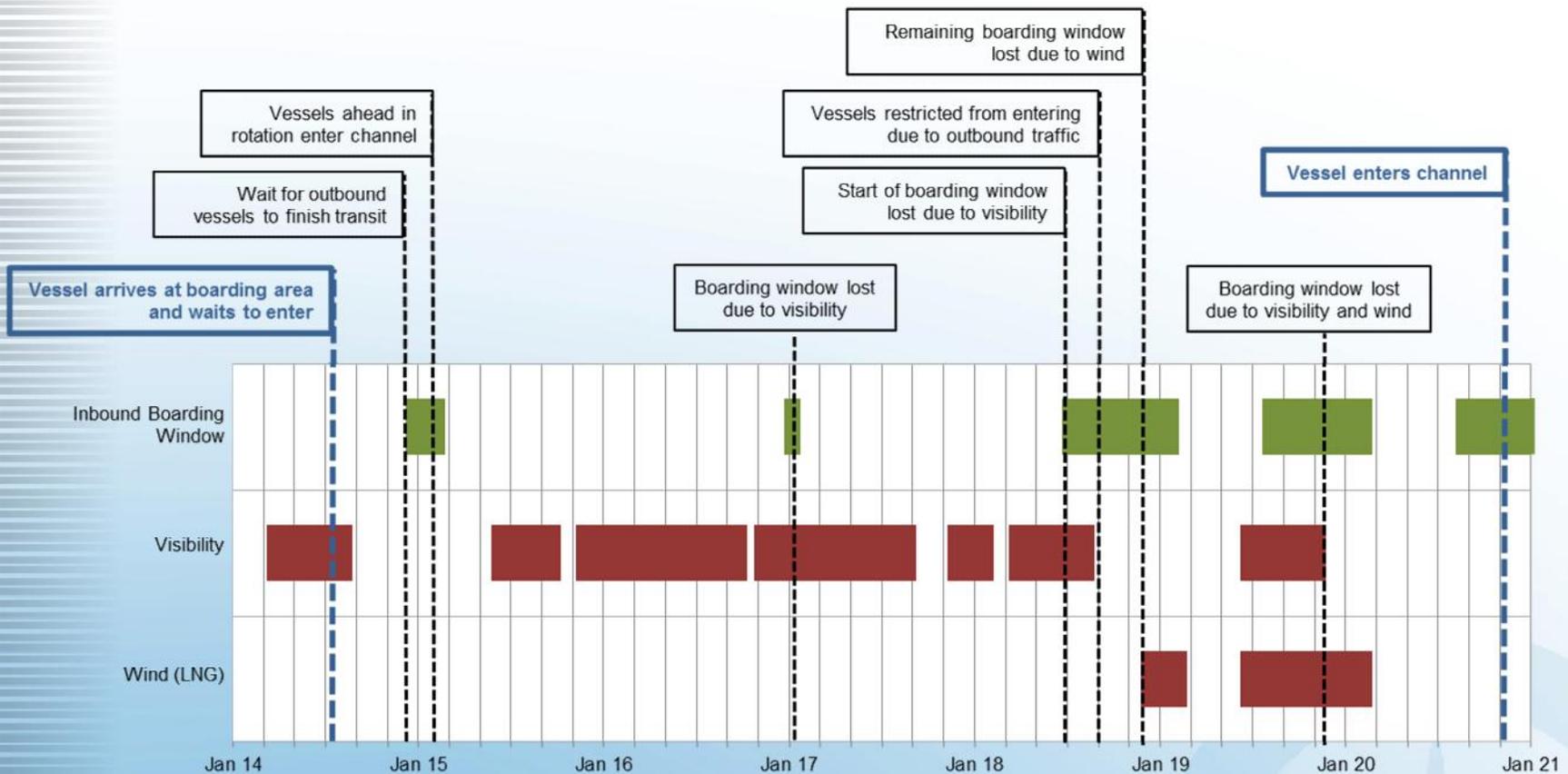


Example of a Long Wait Time

Worst Case (100th Percentile) Scenario

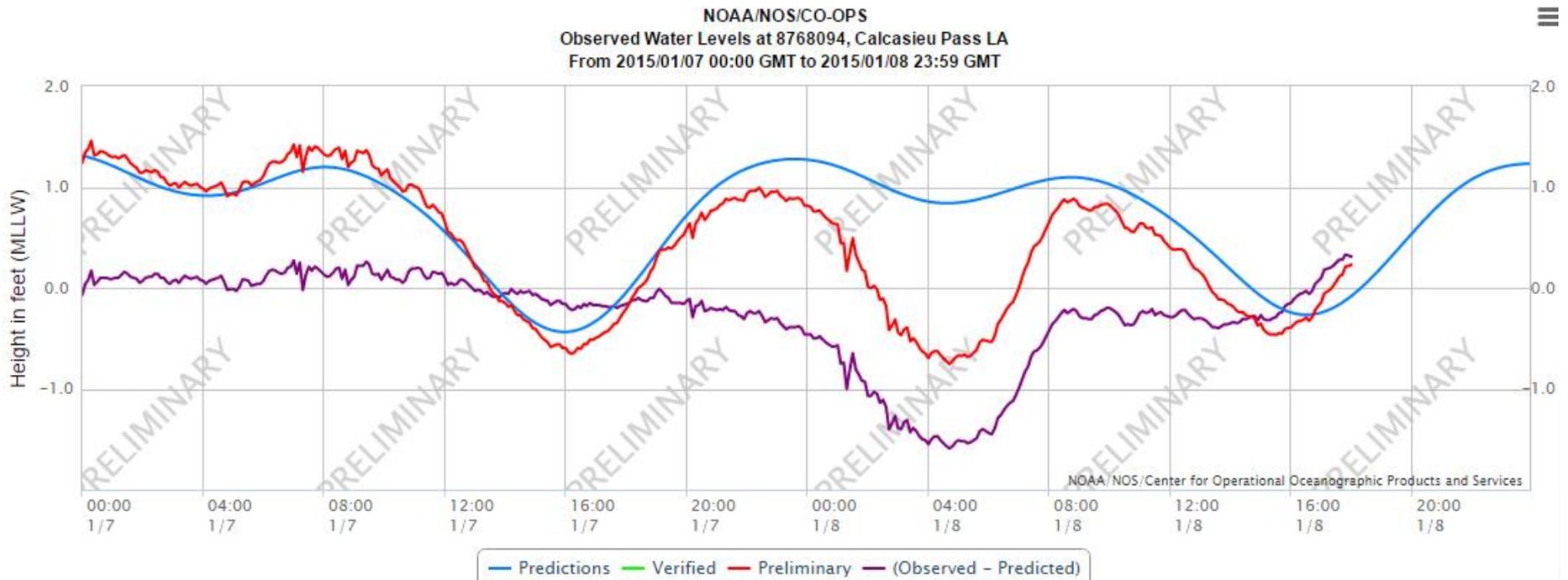
Source: Ausenco

Several vessels per year experienced excessive wait times. The figure below demonstrates a series of events that prevented a vessel from entering the channel, and shows how wait time can be the result of multiple causes.





Low Water Event Calcasieu Pass





Weather Induced Tsunami/Seiche Cameron Parish Shoreline

For a more detailed explanation see: <http://oceanservice.noaa.gov/facts/seiche.html>

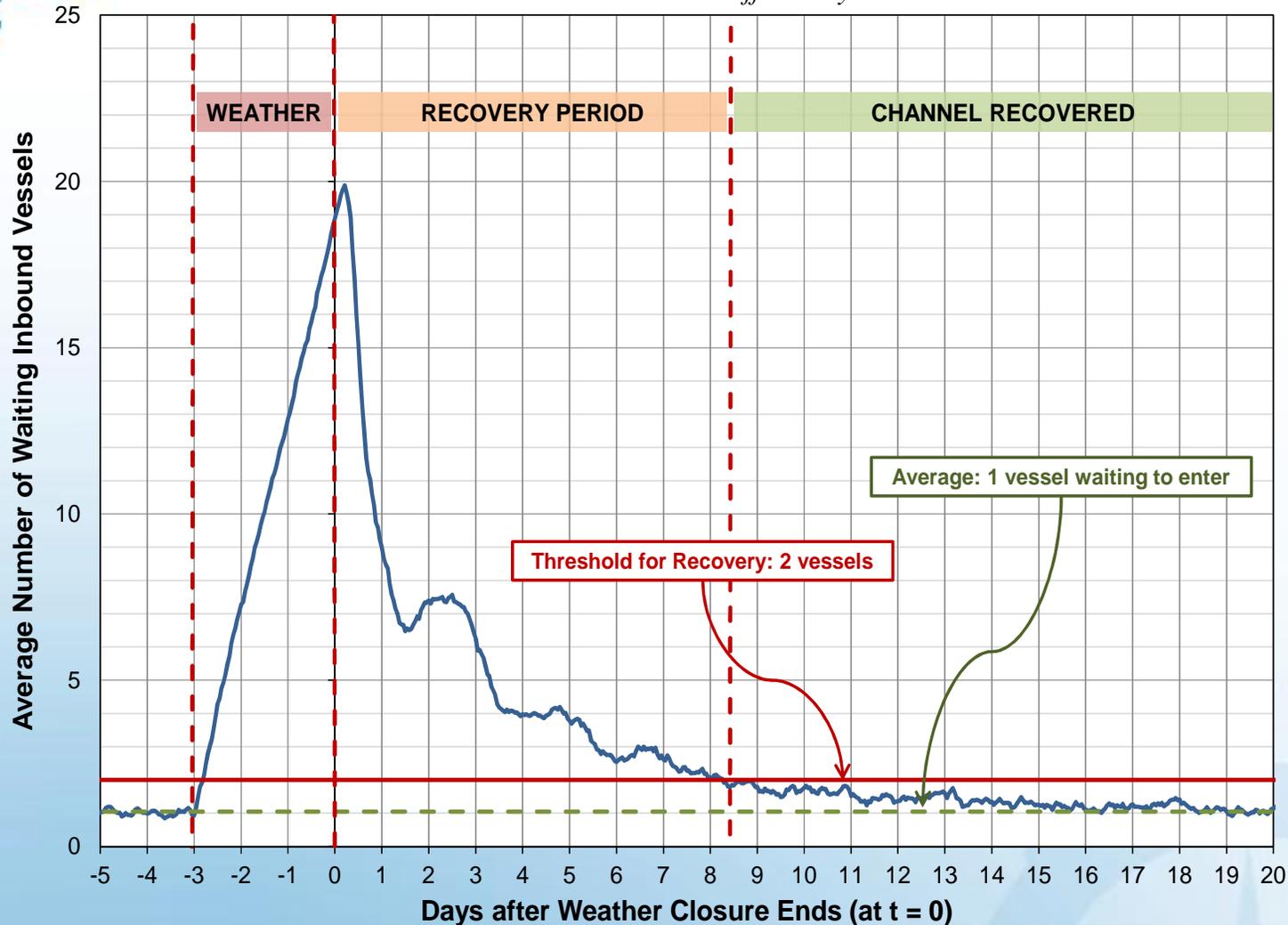




Dredging Impacts Recovery from Weather Events

3-day Closure in 2023 – *Properly* Maintained Channel

Source: Ausenco Traffic Study



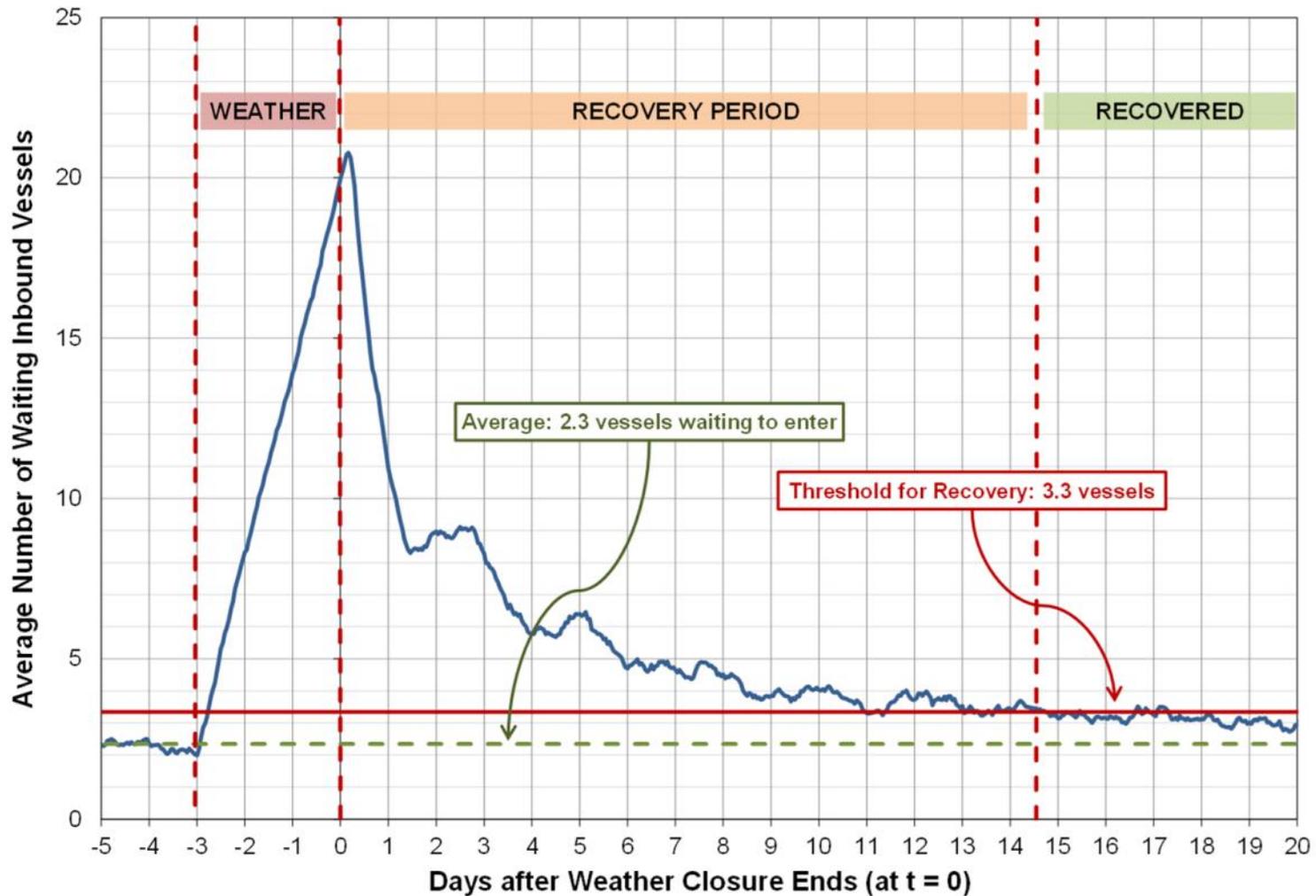


Dredging Impacts Recovery from Weather Events

3-day Closure in 2023 – *Poorly* Maintained Channel

Source: Ausenco Traffic Study

Case 1B - Average Vessels Waiting for a 3 Day Closure in 2023





Traffic Study Dredging Conclusions

Proper dredging of the channel is essential to maintain the present performance and to ensure that future traffic will not experience significant delays that could prevent the terminals from meeting their targets.

As a result of insufficient dredging, the overall charter costs increased, by \$8.0M per year in Case 1A and by \$34.4M per year in Case 1B based on 2023 expected traffic. This increase was primarily driven by the additional delays imposed on Large LNG Carriers, although almost all vessel categories were negatively impacted.

Source: Ausenco Traffic Study



Users Expect A Reliable Channel At Authorized Dimensions

Operational Safety

Provides a Margin of Safety for Operations

Environmental Protection

From a Safer Operating Environment

Commercial Efficiency

Eliminate additional vessel and terminal costs



Vessels meeting on the Calcasieu Ship Channel

\$30-\$40 million (in 2014 dollars) needed annually to maintain congressionally authorized dimensions for safe, reliable, and environmentally sound operations on the Calcasieu Ship Channel.



Dredging Must Be A National Priority

- **Navigation funding is an essential component for the Nation's Energy Development and Global Trade**
- **America's Marine Transportation System infrastructure must be a National priority with *consistent, adequate* funding**
- **A national commitment to shipping, global trade and navigation infrastructure is absolutely essential**
- **Current O&M funding levels for deep draft channels are grossly inadequate. HMTF collections must be used for their intended purpose**
- **Navigation funding is key to Energy Development, the Economy, Jobs, and Exports**



Questions?

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