



# 2015 West Coast Port Slowdown: Using AIS and Geographic Information Systems to Analyze Container Ship Dwell Times

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- 7/1/14 – Labor contract covering 13,600 West Coast Longshoremen expired.
- Starting November of 2014, productivity at West Coast container ports decreased.
- 2/14/15 – President Obama dispatched Secretary of Labor to mediate between the two parties.
- 2/20/15 – A tentative agreement was reached between the Pacific Maritime Association and the International Longshore & Warehouse Union.

- **West Coast anchorage areas began to fill up to capacity with container ships.**
  - Seldom used anchorage areas in Puget Sound were being utilized
  - U.S. Coast Guard Sector San Francisco placed restrictions on the San Francisco General Anchorage
  - Ships were anchoring in San Pedro Bay emergency anchorages
- **Ships began to occupy offshore areas**

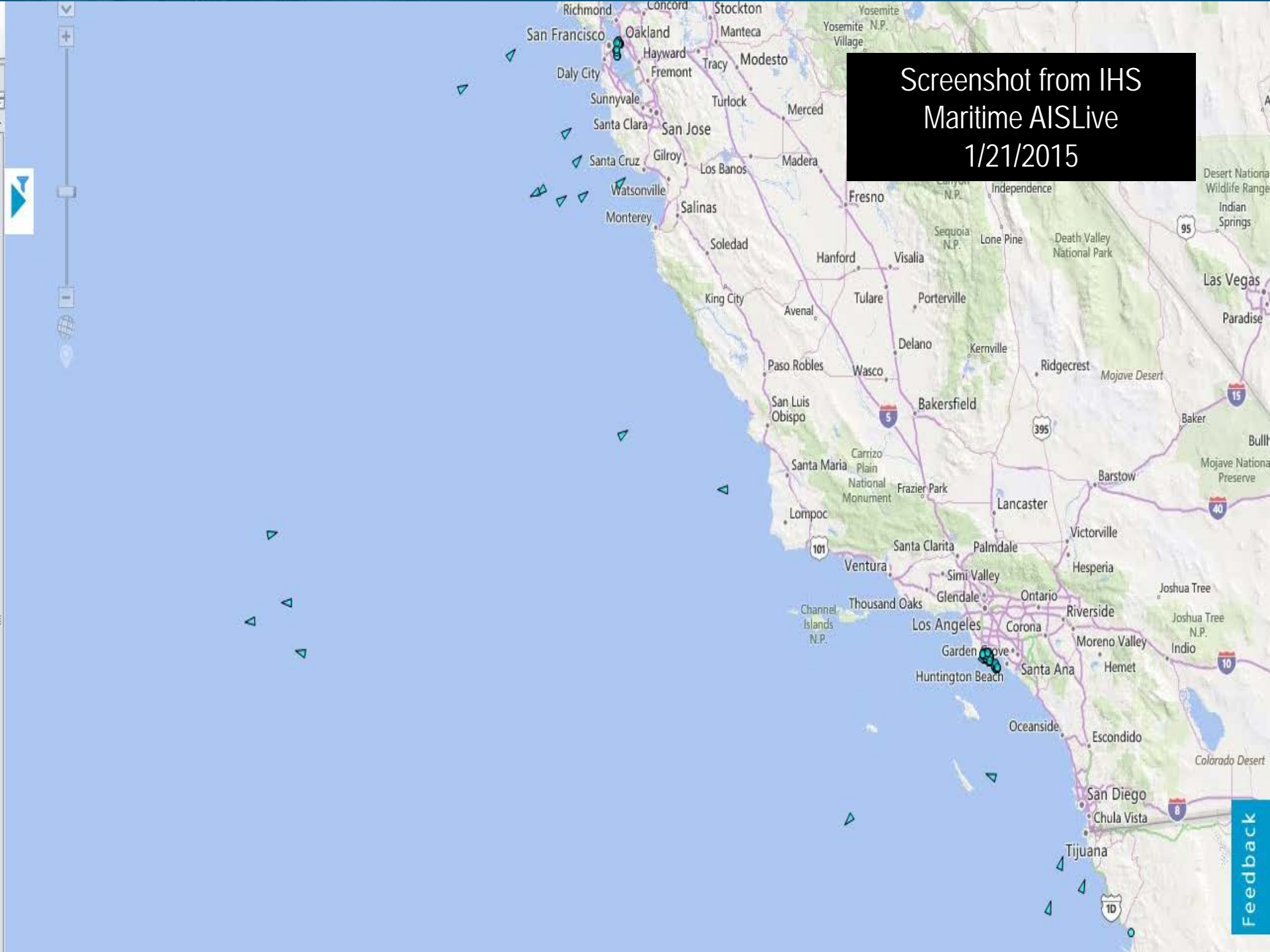


# MARAD use of Automatic Identification System (AIS) technology

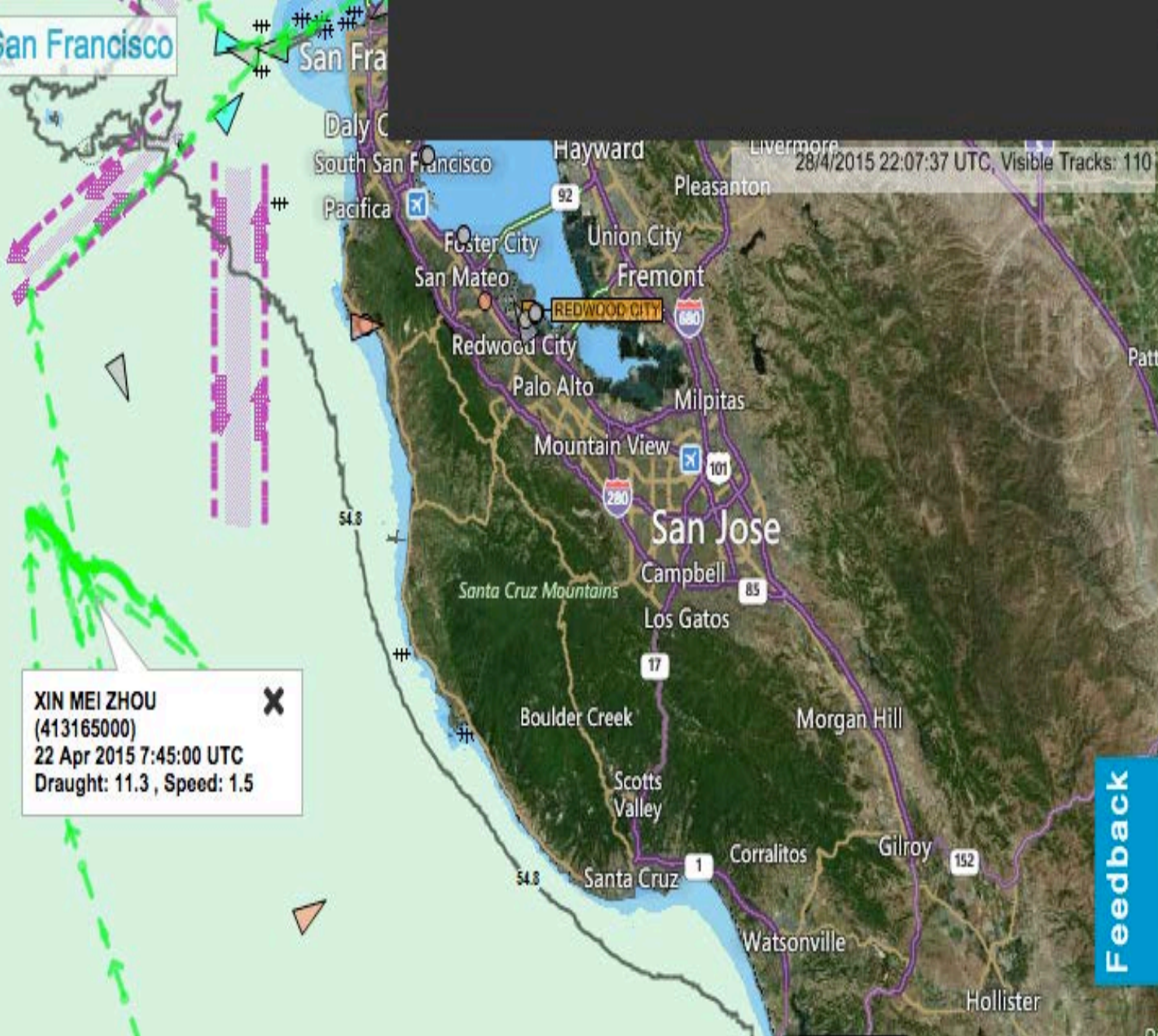


- MARAD started tracking container ships on 1/15/2015
- MARAD had to utilize its terrestrial AIS-based online system to best determine the tactical situation offshore.
- Elements to know:
  - Traffic lanes (in and offshore)
  - Designated Anchorage Areas
  - Track of a ship
  - Does a container ship properly belong in that spot?

Screenshot from IHS  
Maritime AISLive  
1/21/2015



Feedback



**XIN MEI ZHOU**  
(413165000)  
22 Apr 2015 7:45:00 UTC  
Draught: 11.3, Speed: 1.5

Feedback





# Tracking ships (Example)

IMO	TEU	Ship Name	Destination	Time Start Drift	Time End	Time Offshore
9604160	8,480	EVER LIBERAL	Los Angeles	1/21/2015 00:30	1/27/2015 1:00	6.0
9143001	4,062	SEA-LAND CHARGER	Oakland	1/23/2015 5:28	1/26/2015 18:00	3.52
9227314	4,112	SANTA RICARDA	Oakland	1/21/2015 23:00	1/23/2015 18:00	2.79
9293789	8,070	HATSU COURAGE	Long Beach	1/19/2015 00:00	2/1/2015 00:30	12.44

# Offshore Wait Times

- A total of 800+ days spent by container ships waiting offshore for LA/LB and SF during the longshore labor situation. (1/15 – 4/21)

Vessel	Offshore Start	Offshore End	Total Time	Destination
MAERSK SYDNEY	2/20/15 2245	3/16/15 0130	23.1 days	Long Beach
MAERSK SINGAPORE	2/3/15 1900	3/5/15 1600	29.8 days	Long Beach

Port	Minimum	Maximum	Average	Sum
Los Angeles	1.6	18.5	8.1	291.5
Oakland	.7	19.5	5.9	443.2
Long Beach	.4	29.9	12.7	76.0
			<b>Total</b>	<b>810.6</b>

# Anchorage Wait Times

- A total of 2,000+ days were spent by container ships at anchor on the West Coast during the longshore labor situation.

Vessel	Anchorage	Anchored	Weighed	Total Time
SPRING R	Los Angeles	1/28/2015 1100	2/24/2015 0000	26.5 days
YM FOUNTAIN	Manchester	1/25/2015 1645	2/21/2015 0200	26.4 days

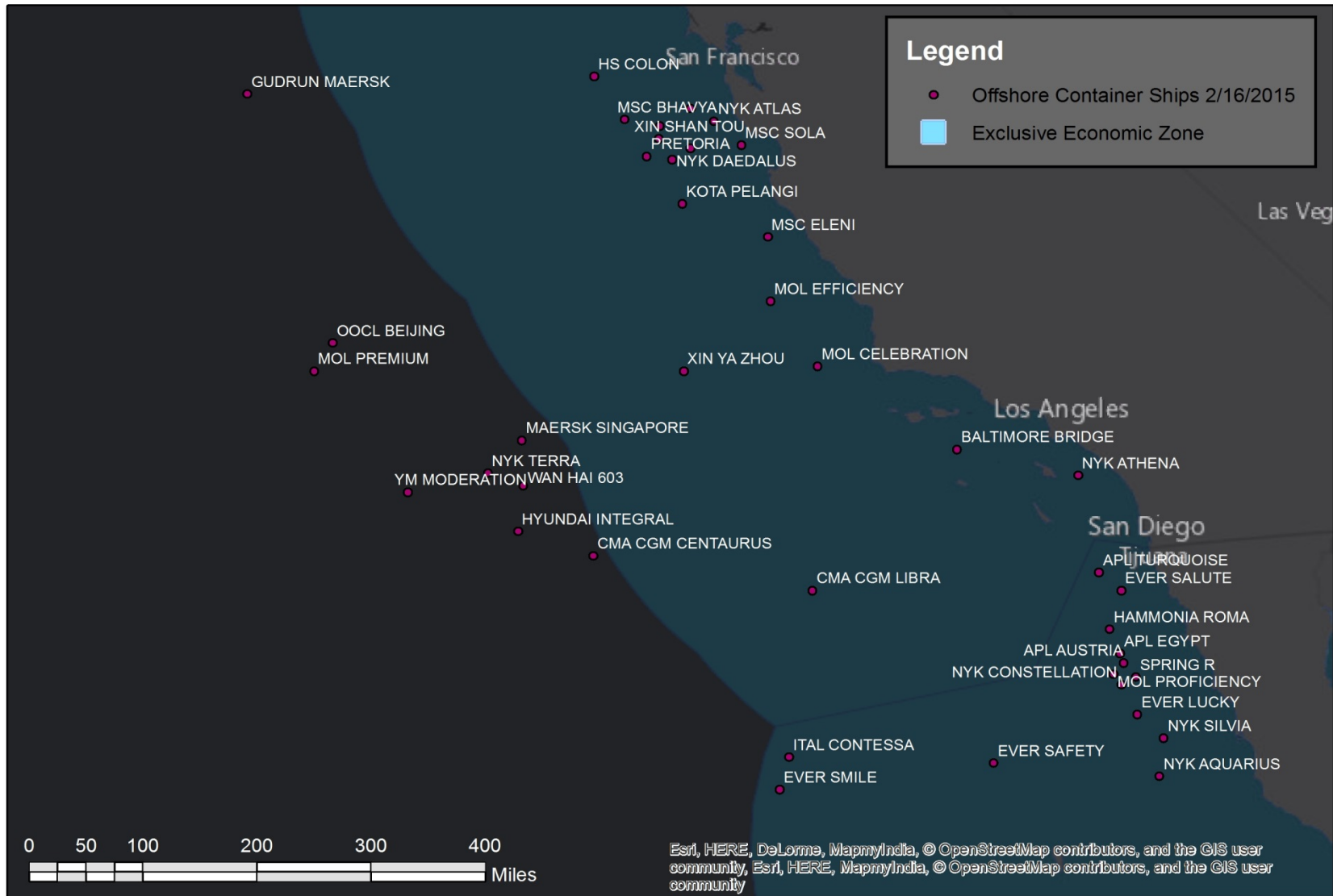
Anchorage	Maximum	Average	Sum
San Pedro	26.5	6.4	1,540
San Francisco	23.8	5.0	150
Puget Sound	26.4	7.4	361
		<b>Total</b>	<b>2,051 days</b>



# Offshore Container Ships along the West Coast of the United States

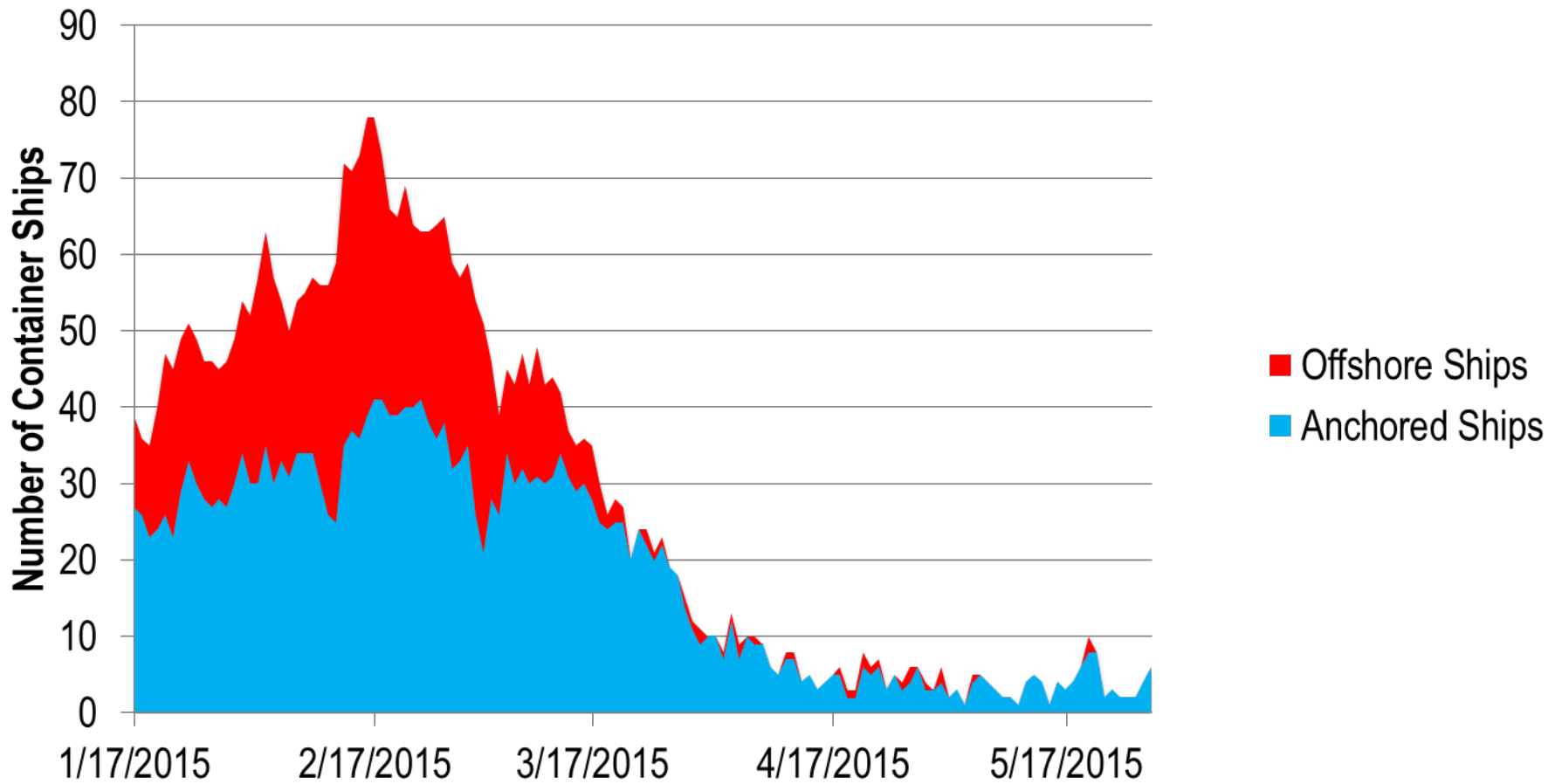
Updated 2/16/2015 0930 EST

There are currently 37 container ships holding position off the West Coast of the United States, representing 244,646 TEUs of carrying capacity.



# West Coast Container Ship Congestion Chart

(1/17/2015 – 6/4/2015)

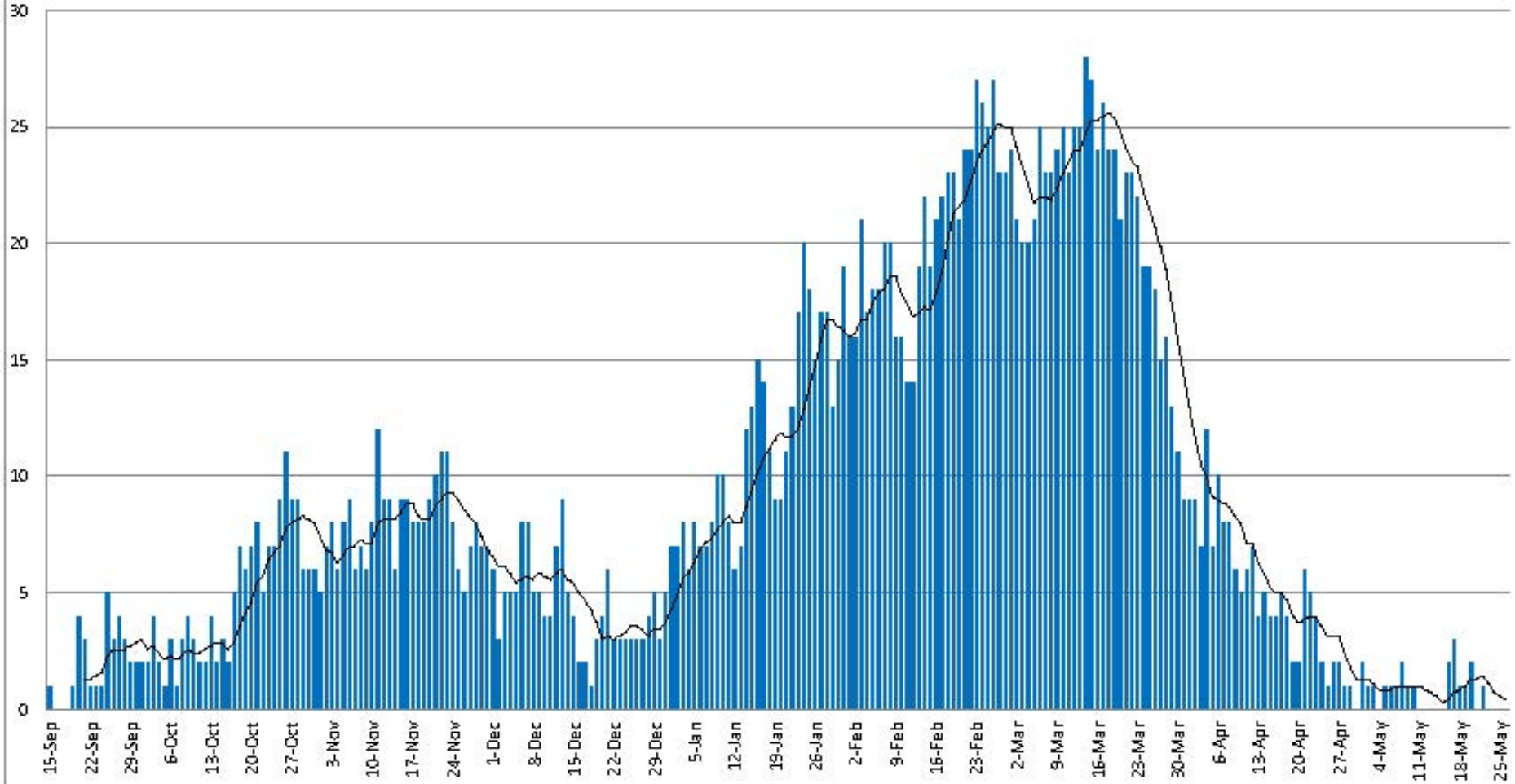




Port of  
**LONG BEACH**  
*The Green Port*

# VESSELS AT A GLANCE: Container Ships at Anchor

## POLA and POLB



Source: Marine Exchange of Southern California  
Tuesday, May 26, 2015

- **Is dwell time a consistent MTS performance measure?**
  - Consistency between coasts and ports – One port is one port
  - “Ops normal” versus “Crisis Mode”
  - Anchoring vs on-time performance
  - Automation? Can this process be automated?
  - Dwell time is different for each type of vessel
- **Are there systems out there that can automate this process?**
  - MARAD’s efforts during the West Coast slowdown involved a fair amount of manpower and time to complete
  - Proprietary software – Subject to contracting and standard AIS errors
  - What kind of human talent is needed to sustain measuring dwell time as a performance measure?
- **Will the FAST ACT’s port performance freight statistics provisions change this?**

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