

IMSF May, 2016

Panama Canal
May 2016

Global Presence

180 staff in strategic locations



Completion Date : 26th June 2016 ?
(Originally scheduled October 2014.)



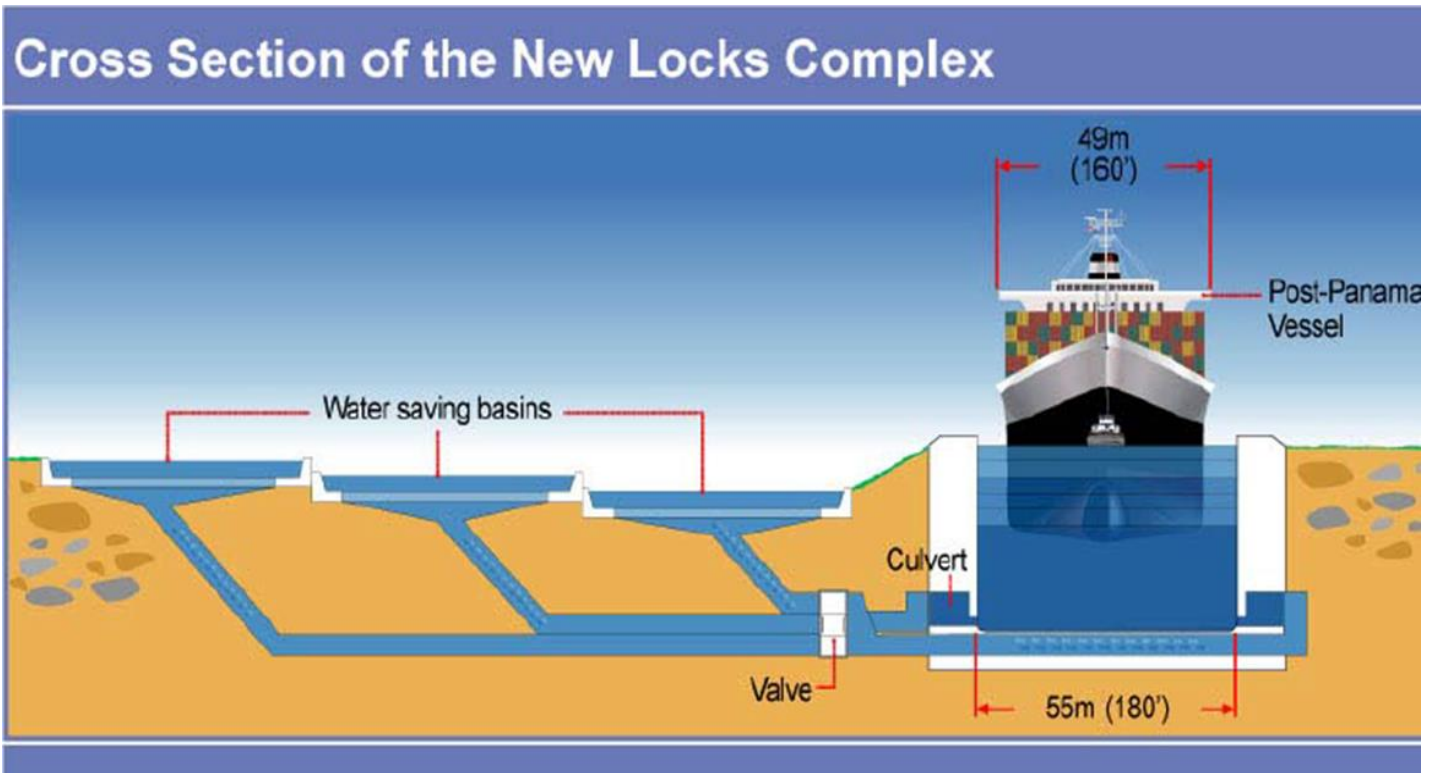
CANAL DE PANAMÁ

Project delayed by one year

Overall Cost of the Expansion : US\$5.25 billion
(This could reach US\$7 billion following cost overruns)

Delayed due to a contractual dispute between ACP and Grupo Unidos, the Consortium Responsible for the construction.

Leaks were discovered in the new Cocali locks on the Pacific side.









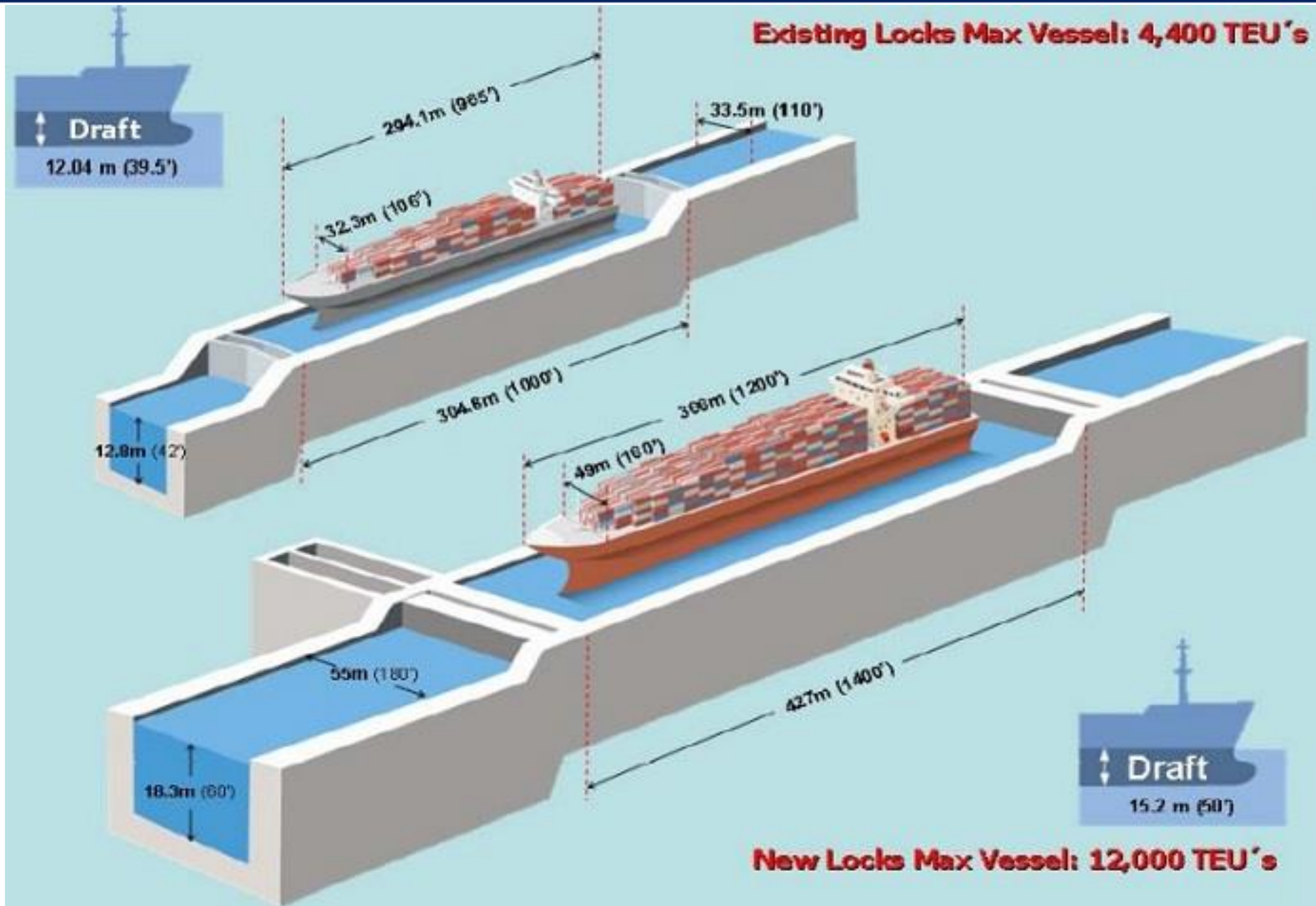


DAVID CAMERON

BLAMES HIMSELF FOR FALLOUT OVER
PANAMA LEAKS









15.24m
26th June, 2016

The image shows a large-scale construction site with several tall cranes and workers in orange safety vests. A red semi-transparent overlay covers the central part of the image, containing the text '15.24m' and '26th June, 2016'. The background shows a clear sky and the skeletal structure of a large building under construction.



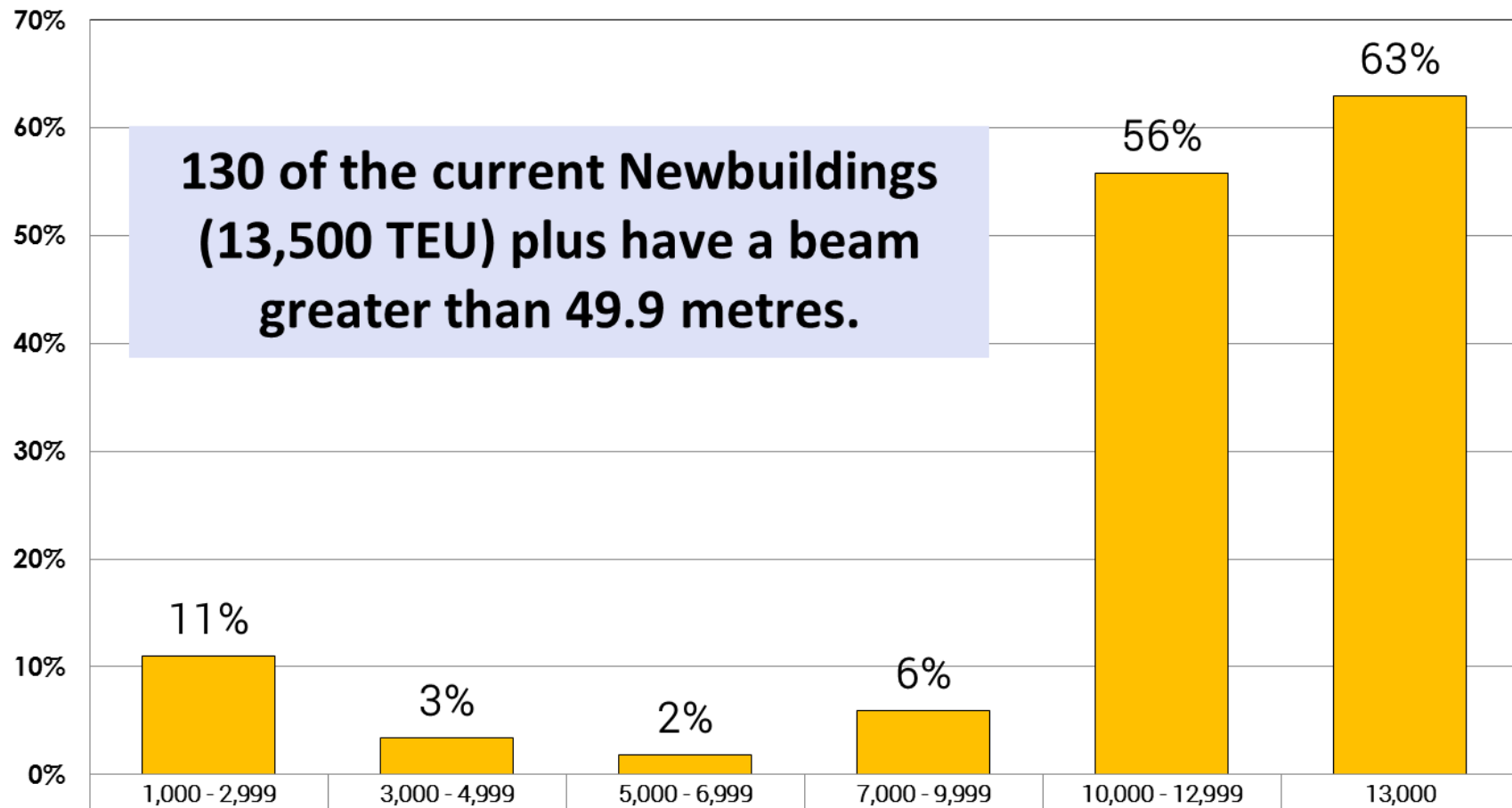
11.89m
18th April, 2016

The image shows a similar construction site to the one on the left, but with a blue semi-transparent overlay. The text '11.89m' and '18th April, 2016' is displayed in white. The scene includes cranes, workers, and the structural framework of a building, with a blue sky in the background.



Container Carriers Newbuilding vs. Existing Fleet

(excludes options)



130 of the current Newbuildings (13,500 TEU) plus have a beam greater than 49.9 metres.

	1,000 - 2,999	3,000 - 4,999	5,000 - 6,999	7,000 - 9,999	10,000 - 12,999	13,000
Orders as % of fleet	11%	3%	2%	6%	56%	63%
On Order	206	28	10	35	54	139
Existing Fleet	909	630	434	102	171	50

Panama vs. Suez

Basis 10,000TEU

Destination: Rotterdam @24 Knots - 250 tonnes/day

Bunkers: Singapore 380cst @ \$213.5/tonne (5th May, 2016)

Load Port	<u>Panama Canal</u>			<u>Suez Canal</u>		
	Distance	Steaming Days	Bunker Costs*	Distance via Suez	Steaming Days	Bunker Costs*
Dalian	13,553	23.53	1,235,325	11,096	19.26	1,108,220
Shanghai	13,463	23.37	1,226,925	10,665	18.52	972,300
Kaohsiung	13,868	24.07	1,263,675	10,070	17.48	917,700
Hong Kong	14,111	24.5	1,286,250	9,888	17.17	901,425
Tokyo	12,587	21.85	1,147,125	11,359	19.72	1,035,300

Add 1 day for Canal transit



NYK BLUE JAY
NYK IBIS

14,000 TEU

LOA: 364m

Beam: 51m

Depth: 29.5m

Draught: 15.79m

Gross: 144,285

Built: JMU Kure

Delivered:

February

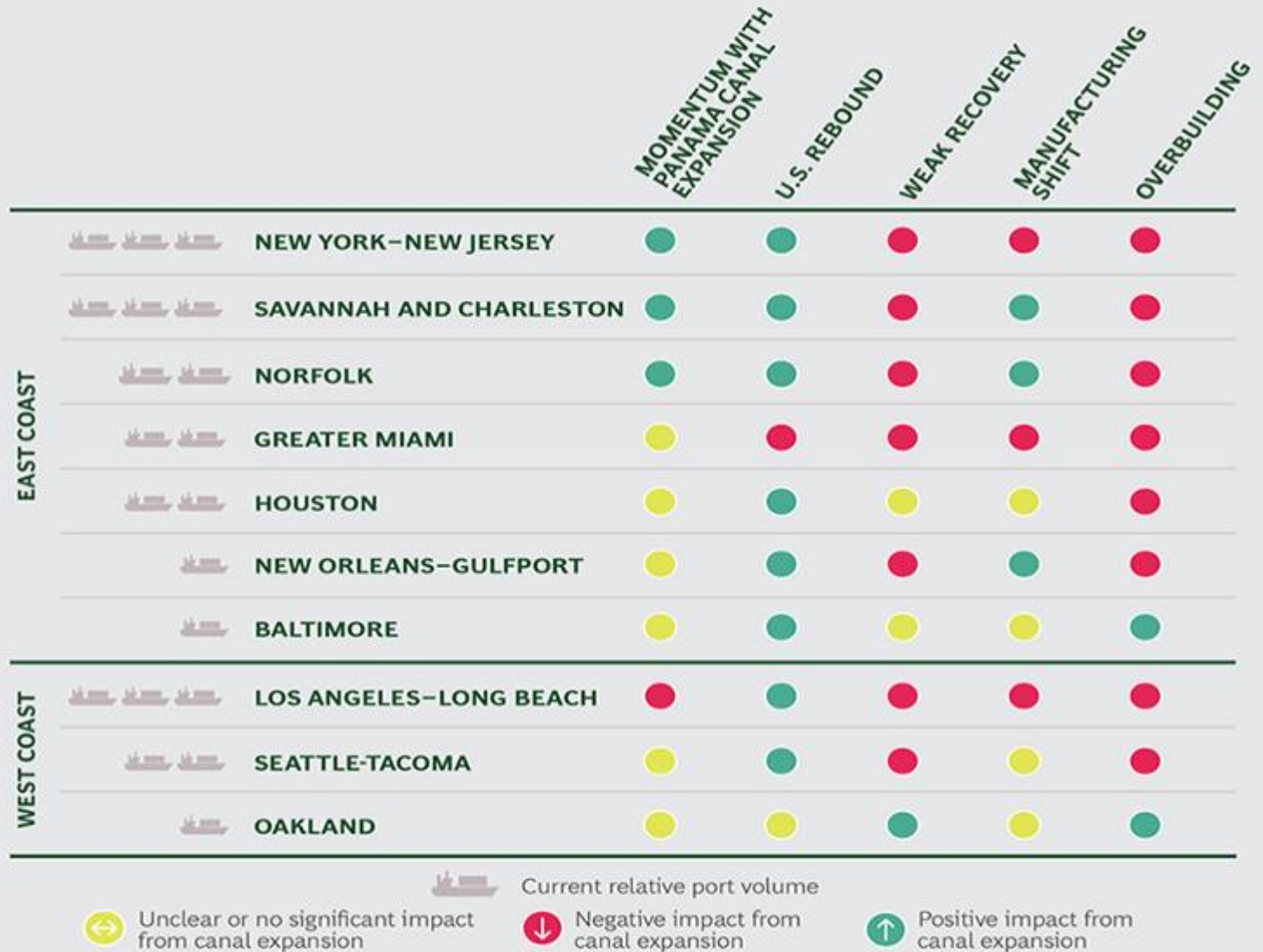
Engine:

Wartsila 9X82

42,750Kw

Exhibit 3

The Largest East Coast Ports Will See the **Greatest Demand Increases**; the Impact on Others Is Less Clear



Sources: JOC Group; BCG analysis.

TOO MUCH BEAM FOR THE ENLARGED PANAMA CANAL

	Q-Max	Q-Flex
Existing Fleet:	10	33
Newbuilding:	0	0



Q-Max



Name: Q-Max
Type: Membrane
Propulsion: Slow speed diesel
with reliquefaction

Length: 345 meters
Beam: 53.8 meters
Depth: 27 meters
Draft: 12 meters
Capacity: 266,000cm

Q-Flex



Name: Q-Flex
Type: Membrane
Propulsion: Slow speed diesel
with reliquefaction

Length: 315 meters
Beam: 50 meters
Depth: 21-27 meters
Draft: 12 meters
Capacity: 210,000cm - 216,000cm

Membrane Type

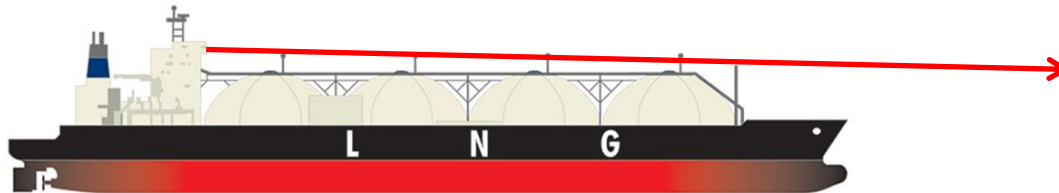
Existing 299 / Newbuilds 110



Name:	Conventional	Length:	272 - 299.5 meters
Type:	Membrane	Beam:	42.5 - 49 meters
Propulsion:	Steam	Depth:	26 meters
		Draft:	11 meters
		Capacity:	125,000cm - 160,000cm

Moss Type

Existing 113 / Newbuilds 14



Name:	Conventional	Length:	276 - 299.9 meters
Type:	Moss	Beam:	42.5 - 49 meters
Propulsion:	Steam	Depth:	26 meters
		Draft:	11 meters
		Capacity:	125,000cm - 177,000cm

Guidance notes from SIGTTO

There are still questions over how many ships will actually be able to transit the Panama Canal on a daily basis.

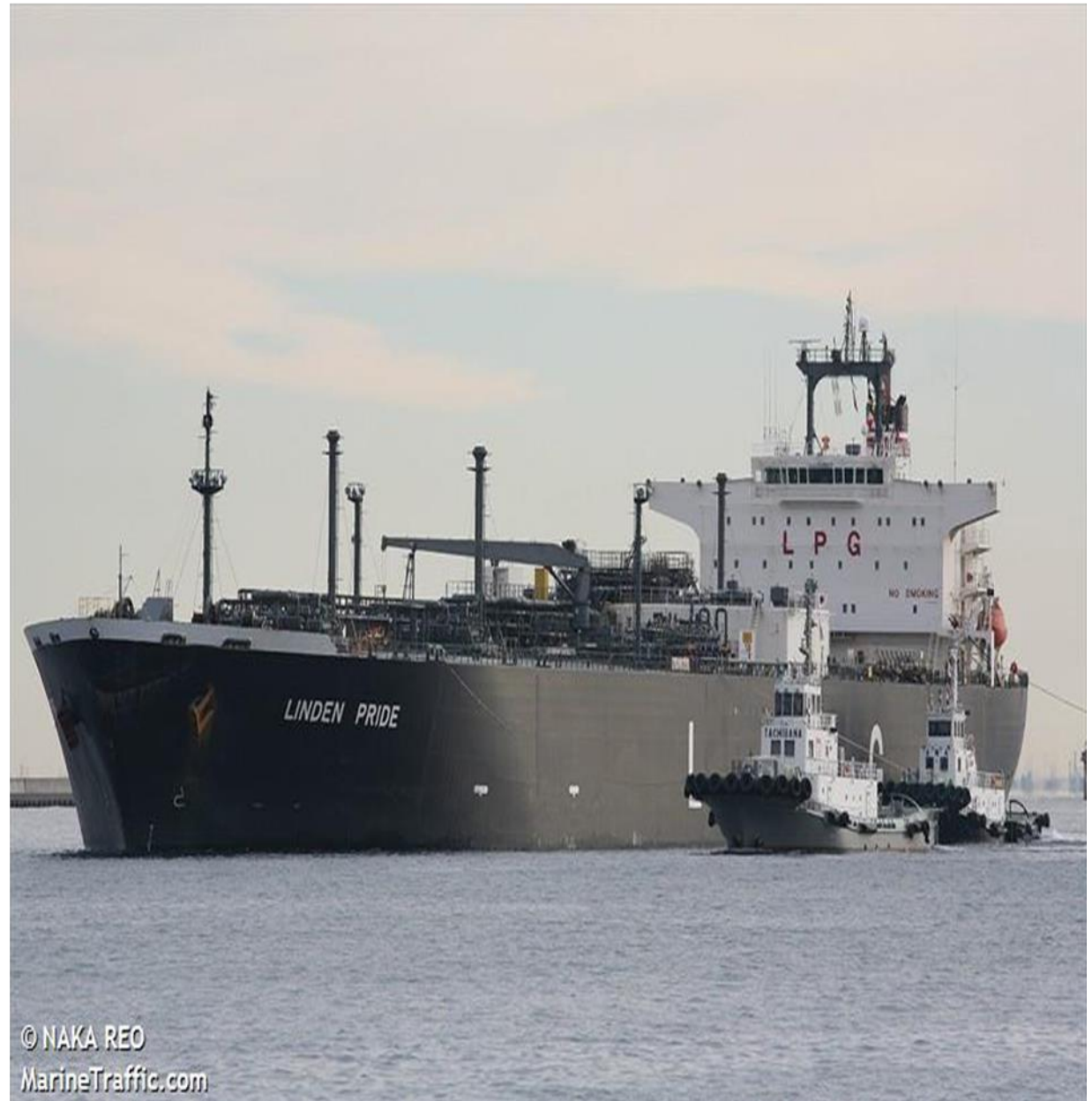
Some LNG experts say only six ships a day will be able to enter the locks in each direction.

LNG ships may need to be modified to transit the canal. Modifications to the ship include changes to pilot platforms and moorings.

Moss type LNG designs favoured by many Japanese owners. However there are strict requirements over visibility from the bridge which some of the older Moss ships will struggle to comply with. However PCA are likely to impose additional controls on terms of pilots/tugs etc.



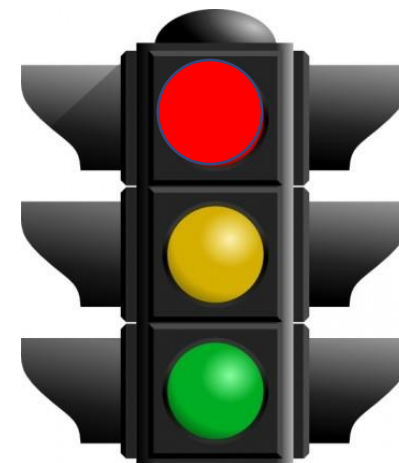
- Bunker prices being so low has caused the economics to go via the Panama Canal to become minimal.
- Would only benefit time wise by going to Japan, save very little time going to China and Korea.
- With a large increase in VLGC capacity, many owners will prefer to go via the cape as it will keep vessel utilization higher.
- Currently some owners are slow steaming in Ballast, and do not need the reduction in time by going through the Panama.
- For Neopanamax spec, only 4 vessels will be to transit each day (2N, 2S) meaning there will be competition from LNG and Containerships for these spaces, meaning VLGC owners may have to pay a high premium to go through.



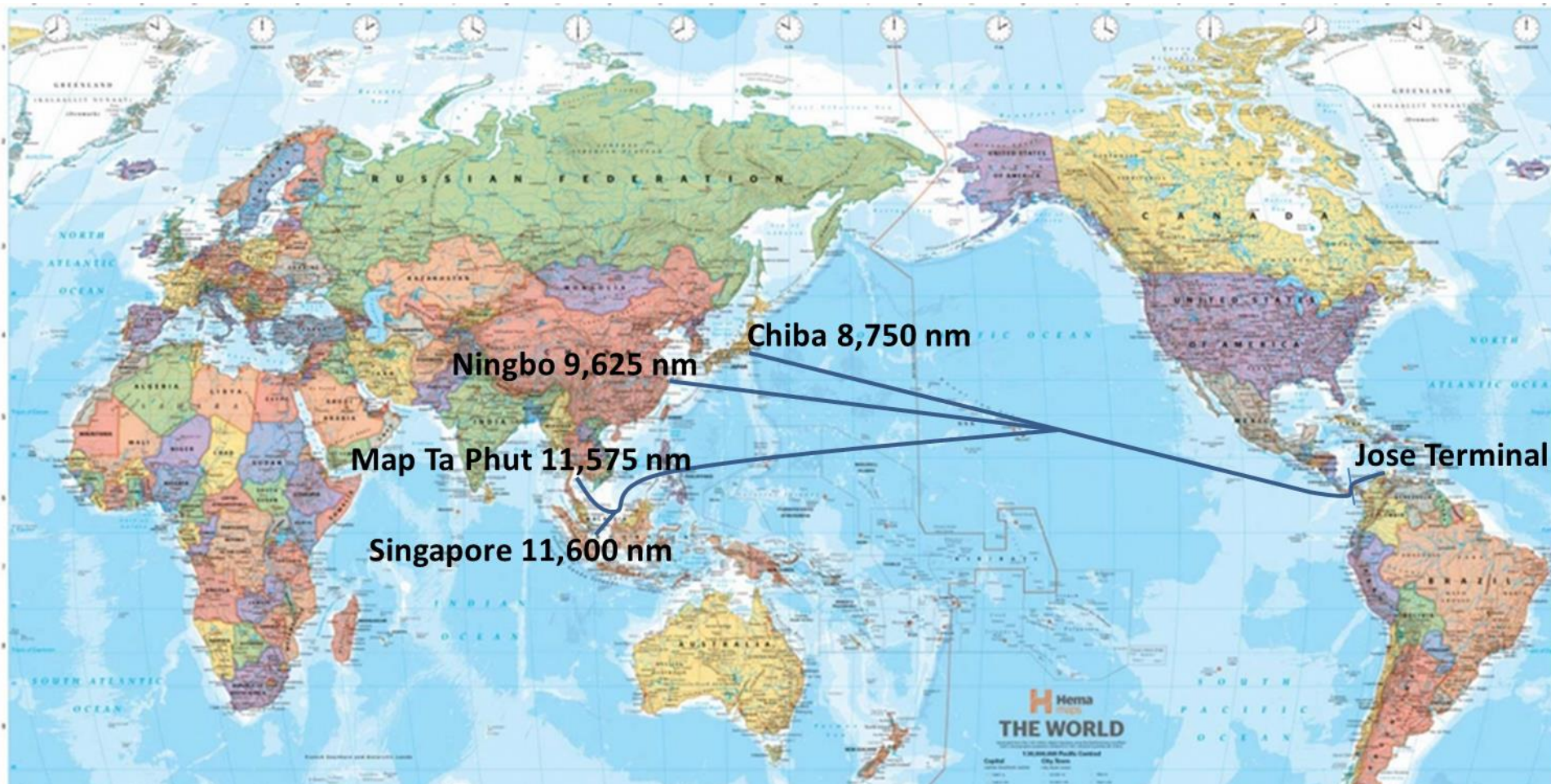
Panama Canal Expansion *Existing and New Dimensions*

	Existing	New 2016 Limits	*Typical Aframax Dimensions	*Typical Suezmax Dimensions	*Typical VLCC Dimensions
Max Length	294.3m	366m	245m	275m	333m
Max Beam	32.21m	49m	42.8m	48.5m	60m
Max Draft	12.03m	15.24m	14.9m	17m	22m
Max cargo size	65,000mt	130,000mt			

* 2008 built onwards



	Distances Via Cape		Via Cape Days at 12kts		Distances Via Panama		Via Panama Days at 12kts		Panama Canal Advantage/(Disadvantage) Days
	Miles				Miles		inc 1 day transit		
Venezuela to Jamnagar	10,375		36		14,425		51	(15)	
Venezuela to Singapore	11,150		39		11,600		41	(3)	
Venezuela to Map Ta Phut	11,925		41		11,575		41	+0	
Venezuela to Ningbo	13,250		46		9,625		34	+12	
Venezuela to Chiba	14,050		49		8,750		31	+17	



	Distances Via Cape	Via Cape Days at 12kts	Distances Via Panama	Via Panama Days at 12kts	Panama Canal Advantage/(Disadvantage)
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LR1 Product Tankers Trading EC South America?



Commercial Owner	Nos.
Andriaki Shipping	4
BW Pacific	6
CMB Financial Leasing	2
Concordia Maritime	10
Coral Shipping	1
Cosco Dalian	5
D'Amico Tankers	6
Eletson	1
Global Energy Maritime	1
Jacob E.	2
Livanos Group	6
Meiji Shipping	2
Nakata Gumi	2
Nautical Bulk Holding	3
Navig8 Product Tankers	6
Nisshin Shipping	3
Pleiades Shipping Agency	3
Prime Marine Management	4
Samos Steamship	2
Sinokor Merchant Marine	6
Sumitomo Corp.	2
Unknown	2
Valles Steamship	1



DRY BULK MARKET

Deadweight sizes of Capes are moving up so are less likely to use the enlarged canal.

Draft restrictions in US East Coast ports will also limit any increase in vessel calls.

In a weak commodity market, a buyer in India chooses **NOT** to source steam coal from Indonesia or South Africa (nearest) but instead from Colombia because FOB plus Freight combined is cheaper.

Longer delivery is not an issue.

April 2016



The International Transport Workers' Federation

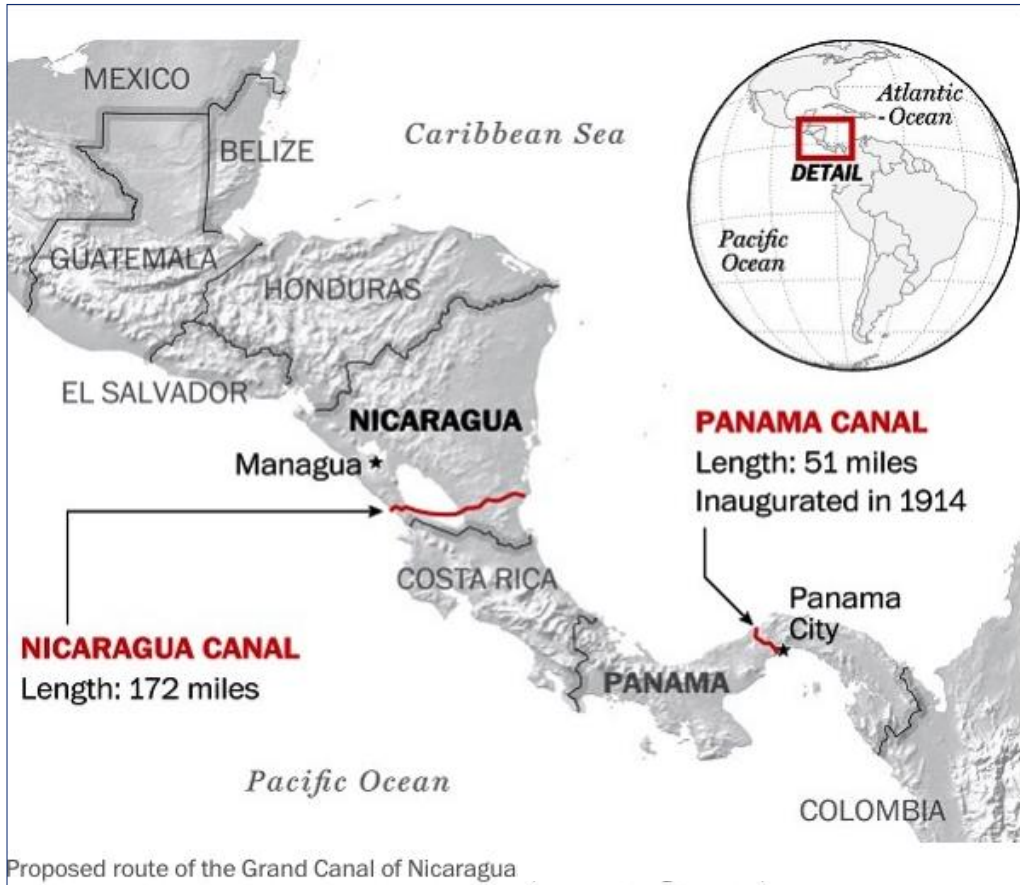
The ITF has expressed concern over the safety of the new Panama Canal locks after an independent study into the expansion project confirmed some local pilot's concerns that the design of the new locks poses added risks to workers and ships. [Canal officials have denied the accuracy of the study.](#)

The ITF says that the concluded that the safety of maneuverability within the locks is compromised due to several factors, namely:

- *The locks' dimensions are too small for safe operation (with both gates closed);*
- *There are no refuge areas for the tugboats inside the locks, leaving no room for failure (human error, miscommunication, broken lines or engine failure);*
- *The tug bollard pull is insufficient;*
- *In terms of maneuverability in the locks, the control of the vessel was compromised under the average environmental conditions present in that geographic area (data provided by the contracting party). The main reasons were the low power of the tugboats and the required bollard pull. With milder conditions the exercise was concluded safely.*
- *The study recommends that a complete risk analysis and special training should be carried out to avoid any accidents that may result in loss of life or pollution.*

The conclusions echo similar concerns expressed to back in July 2014 regarding the design of new locks, particularly with regards to the size of the individual lock chambers, the configuration of the tugs, and the prevailing winds that the region is known for. In an editorial written in October 2014 by Captain Rainiero Salas, President of the Panama Canal Pilot Association, wrote about concerns of [major operational issues with the expanded Canal](#), which also centered around the use of tugboats over locomotives and the lack of a structured training program for pilots. Salas also warned about the navigation of two ships at a time through Culebra Cut (Gaillard Cut), the narrowest part of the Panama Canal.





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Ship-to-ship propane transfers and the Panama Canal

