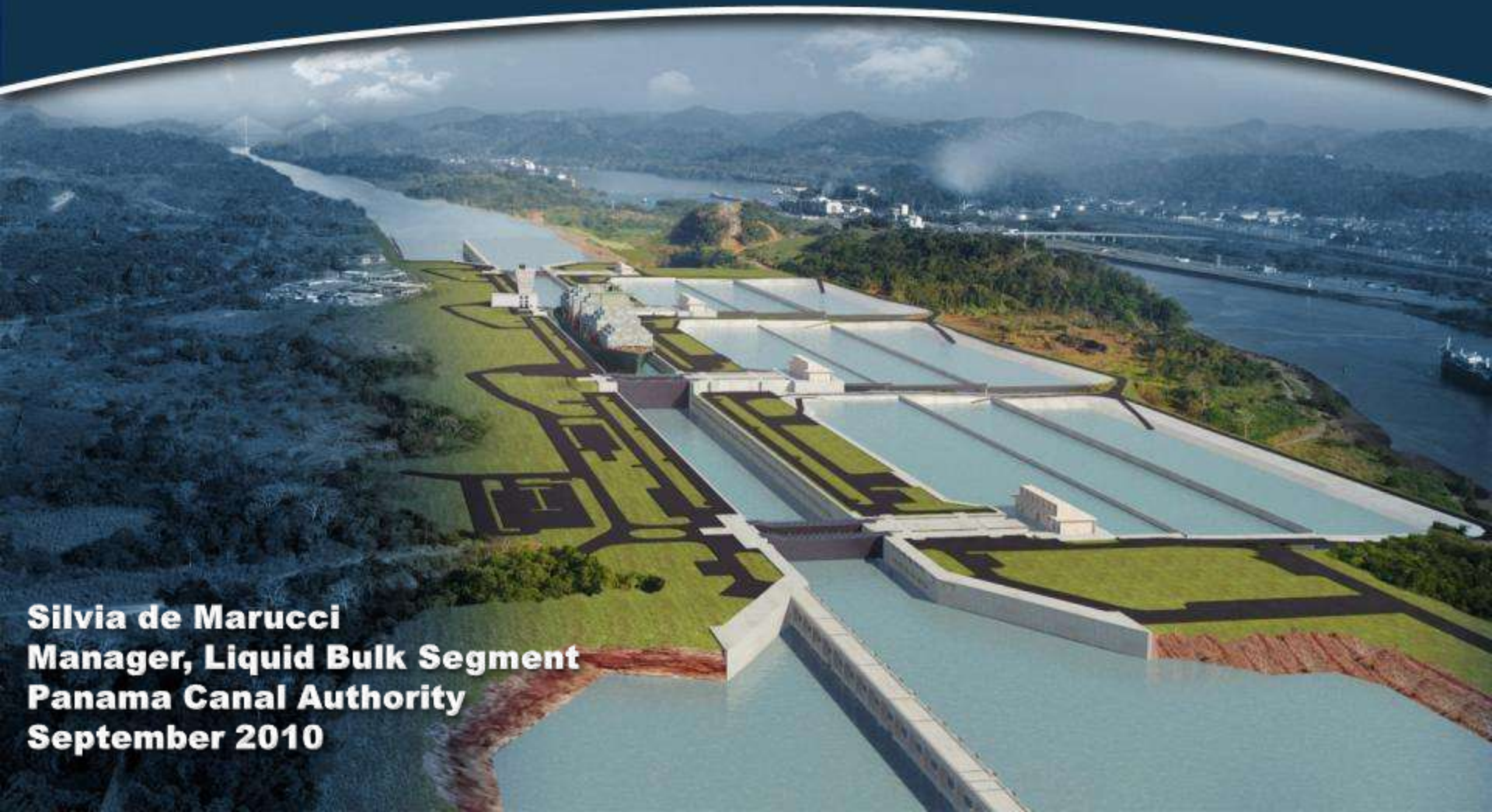
The Panama Canal: A Challenge to Efficiency in the XXI Century



Silvia de Marucci
Manager, Liquid Bulk Segment
Panama Canal Authority
September 2010

AGENDA

- Physical Profile of the Panama Canal
- Canal Performance and Market Profile
- Drivers of the Canal Expansion Project
- Components of the Project and Updates
- Potential Impact of the Canal Expansion

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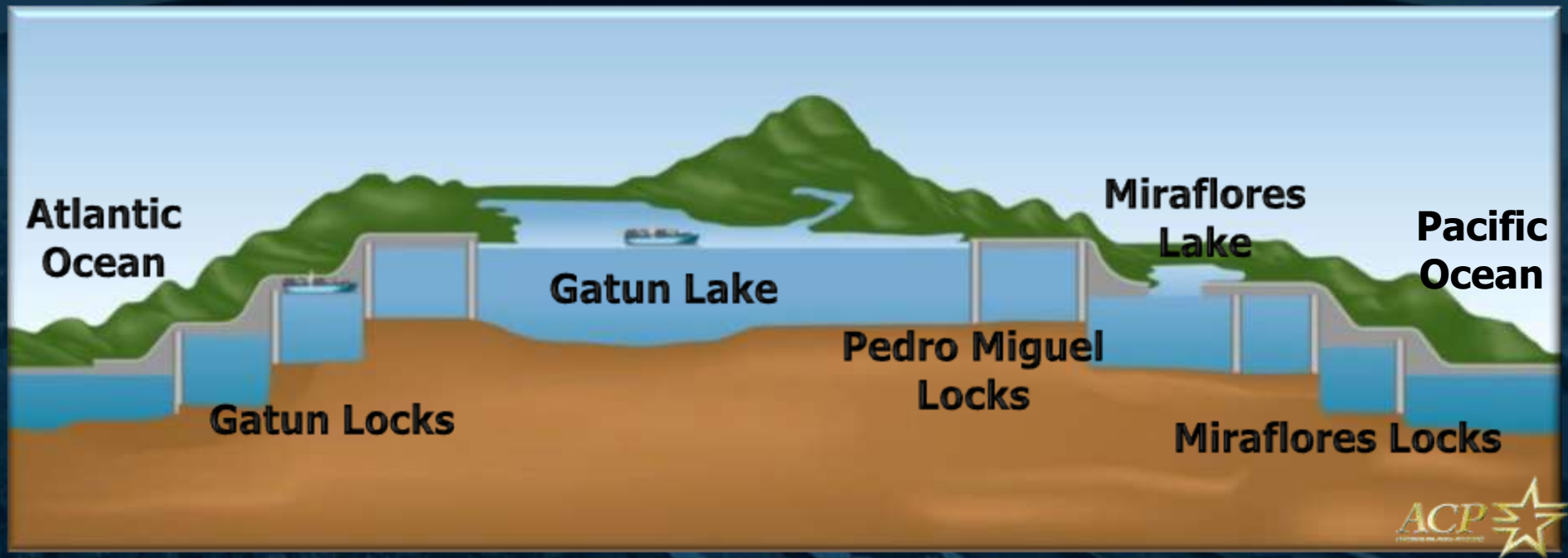
The Panama Canal

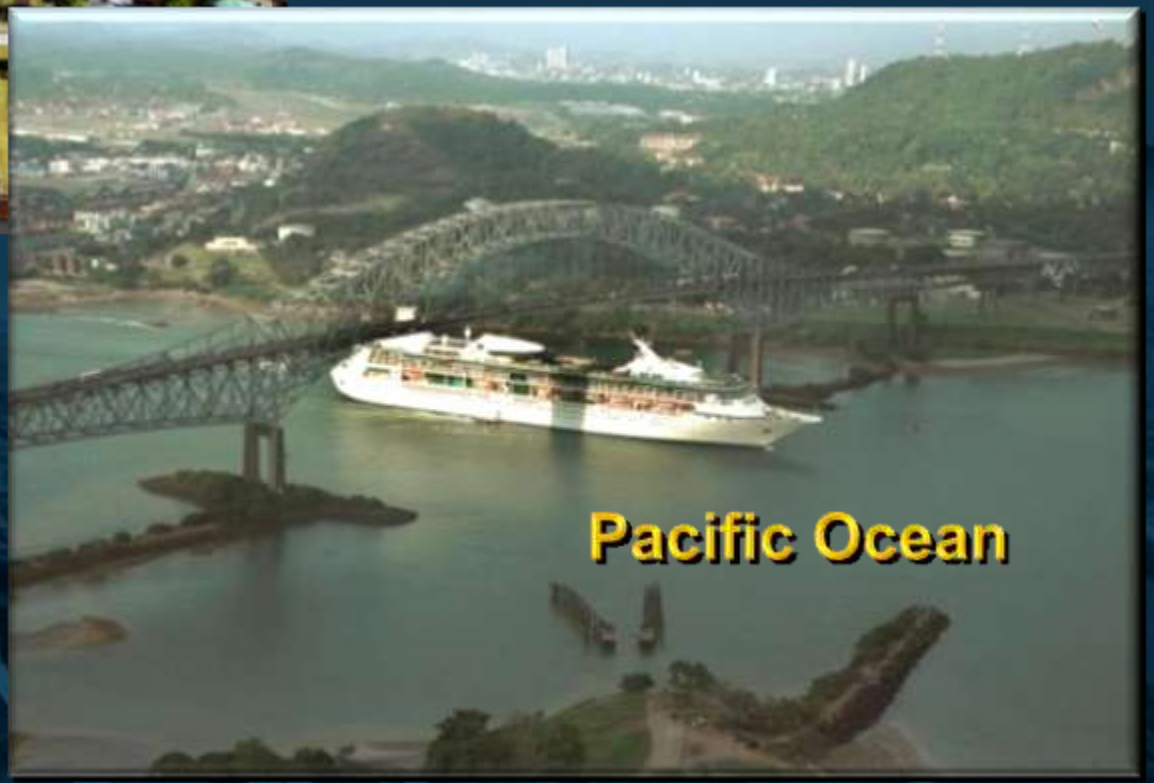
- Approx. 50 miles (80 km) long between the Atlantic and Pacific Oceans
- Gatun Lake is 85 feet (26 m) above sea level
- The water used to raise and lower vessels in each set of locks comes from Gatun Lake by gravity (approx. 52 million of gallons per transit)



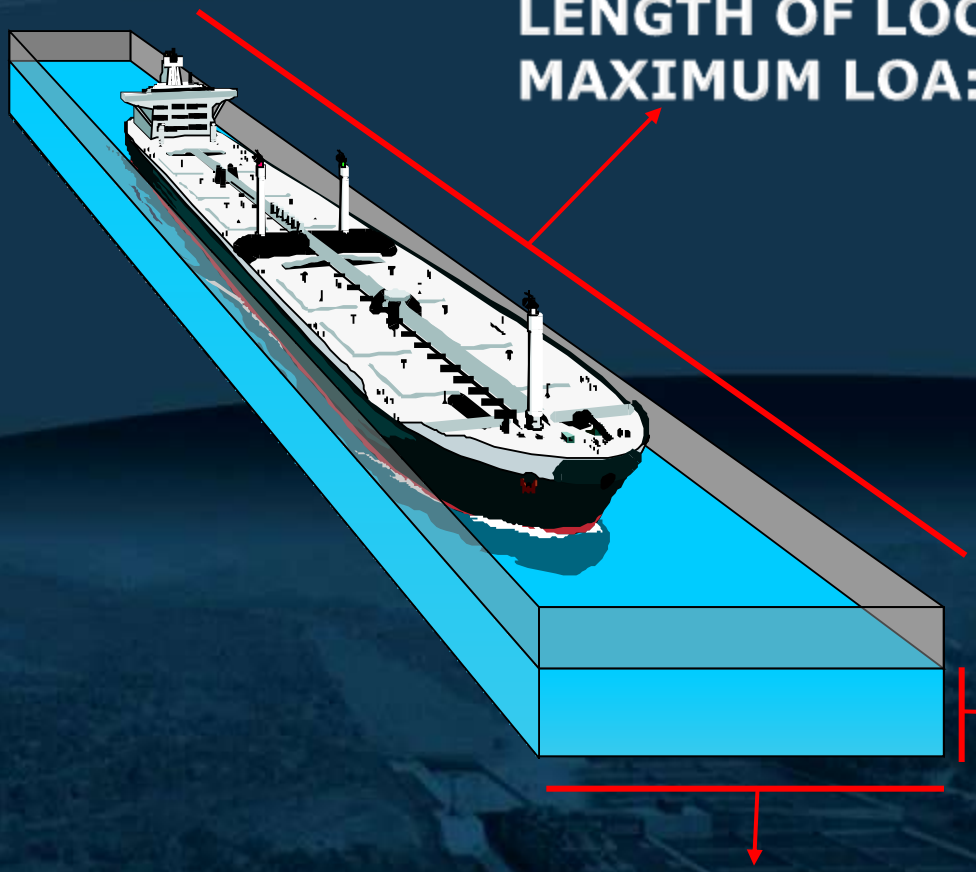

Gatun Locks


Pedro Miguel Locks


Miraflores Locks


Pacific Ocean

Current Dimensions of Panamax Locks



LENGTH OF LOCK: 304.8 m (1,000 ft)
MAXIMUM LOA: 294 m (965 ft)

MAXIMUM DRAFT: 12 m (39.5 ft)

LOCK WIDTH: 33.52 m (110 ft)
MAXIMUM BEAM: 32.5 m (106 ft)

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1915 – 2009*
Transits: 986,588
Cargo: 8,581,029,871 LT
ACP

Market Segmentation

- Dry Bulk

For grains, up to Panamax 43´ draft, Other bulkers (Capesize) up to 350K DWT 65´ draft*

- Full Containership

Up to Post-Panamax of 13,000 TEUs – 49.5´ draft

- Liquid Bulk

Tankers up to ULCC, 440K DWT 80´ Draft, Chemical carriers small up to 47K DWT

- Reefers

Small vessels up to 40k DWT

- Specialized Services
  - Vehicle carriers

Up to Panamax 8000 CEUs 106 beam 748 LOA

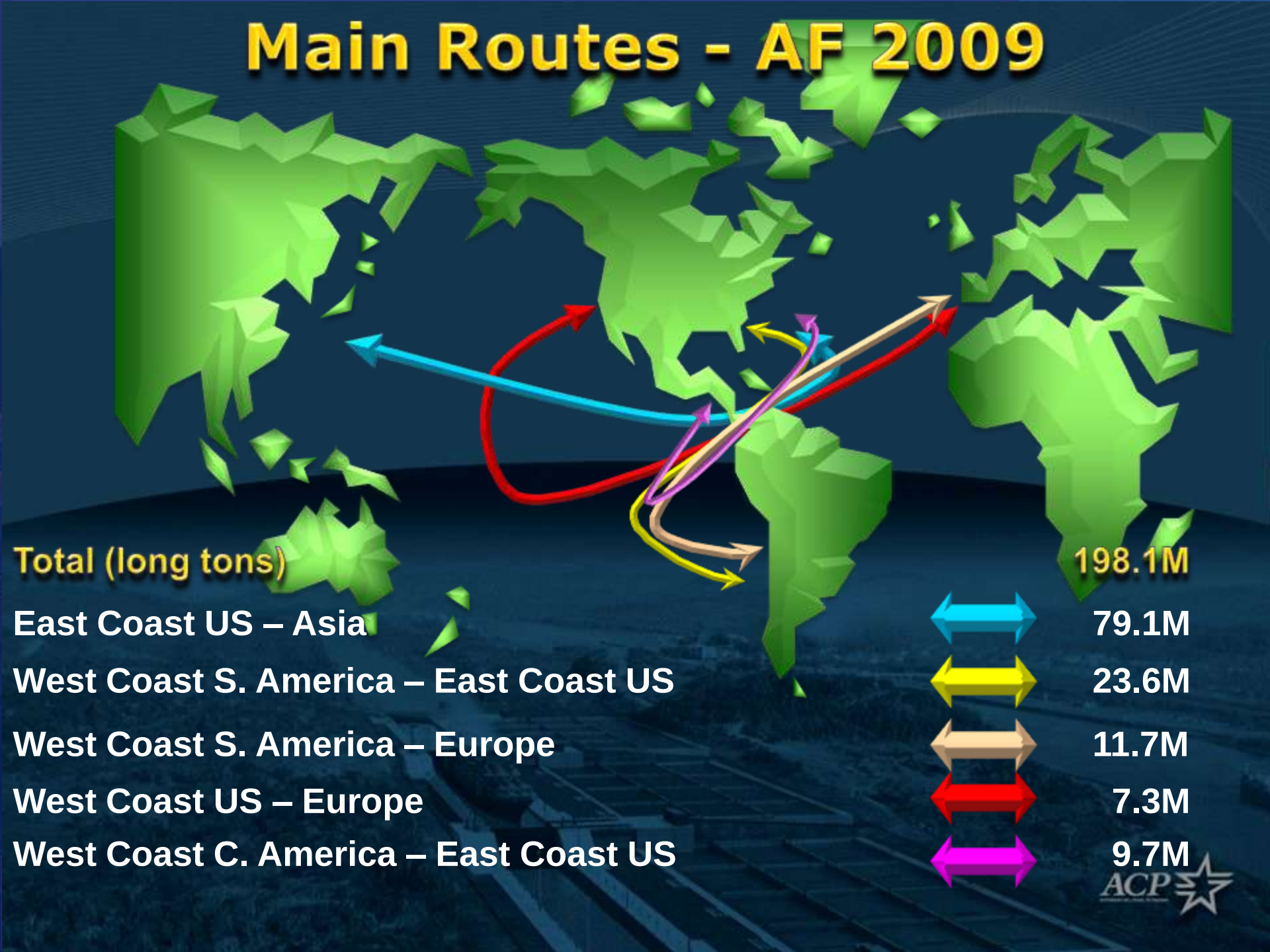
  - Passenger

Up to Post-Panamax 150K GRT 135 beam 1,130 LOA

- General Cargo
- Others

* Maximum draft in salt water

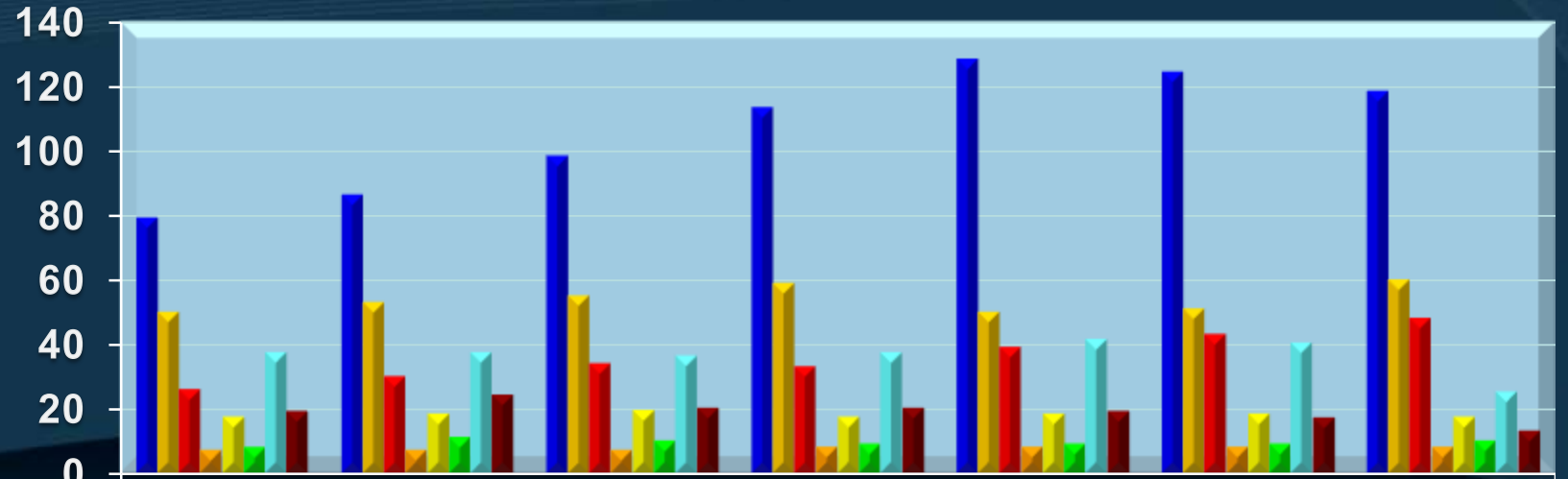
Main Routes - AF 2009



Total (long tons)	198.1M
East Coast US – Asia	79.1M
West Coast S. America – East Coast US	23.6M
West Coast S. America – Europe	11.7M
West Coast US – Europe	7.3M
West Coast C. America – East Coast US	9.7M

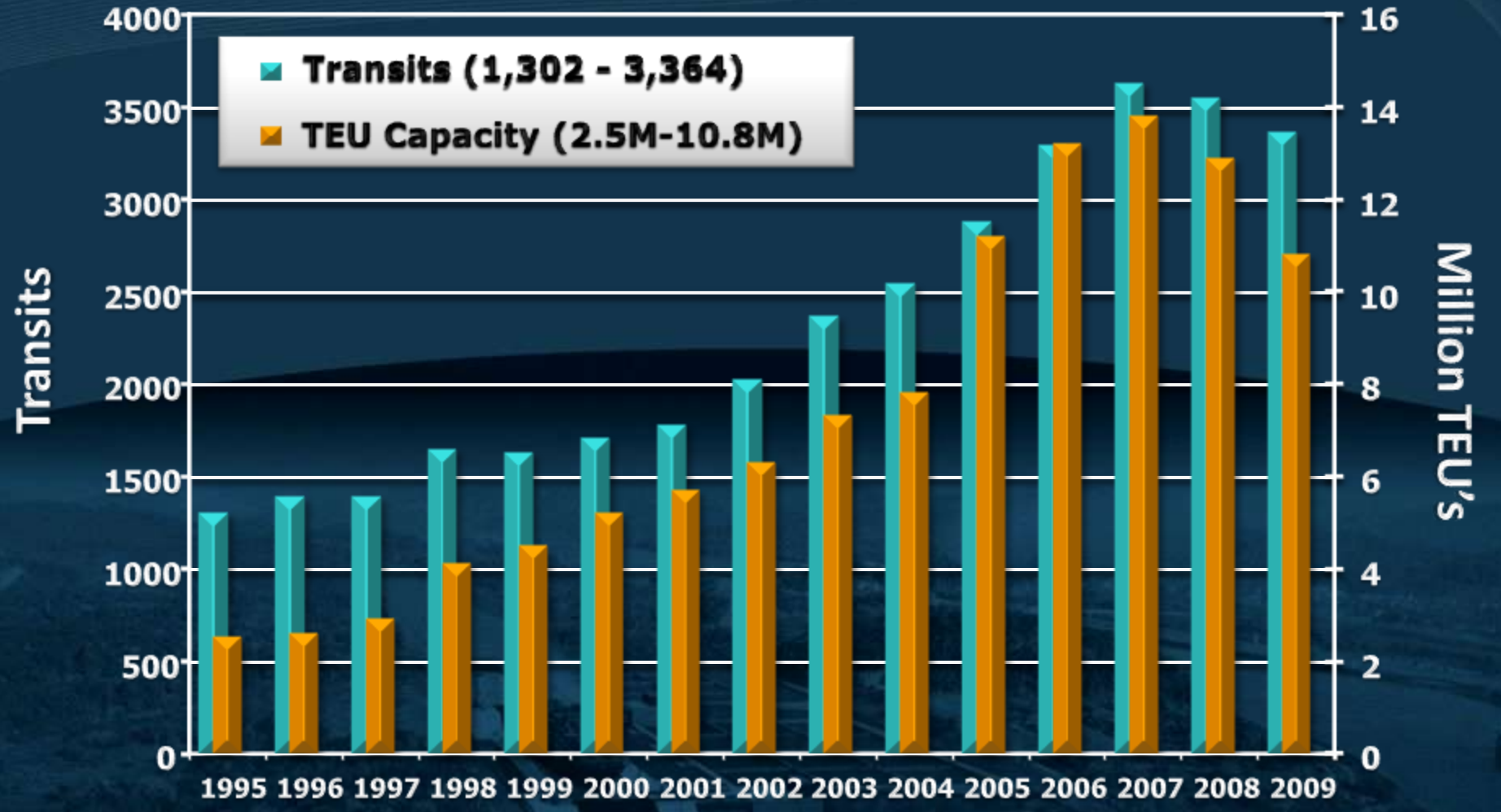
PC/UMS Tonnage by Market Segment

(in millions - FY 2003-2009)



	2003	2004	2005	2006	2007	2008	2009
Containers	79	86	98	113	128	124	118
Dry Bulk	50	53	55	59	50	51	60
Liquid Bulk	26	30	34	33	39	43	48
General Cargo	7	7	7	8	8	8	8
Reefers	17	18	19	17	18	18	17
Passenger	8	11	10	9	9	9	10
Car Carriers	37	37	36	37	41	40	25
Other	19	24	20	20	19	17	13

Panama Canal Container Traffic Growth (FY 1995-2009)



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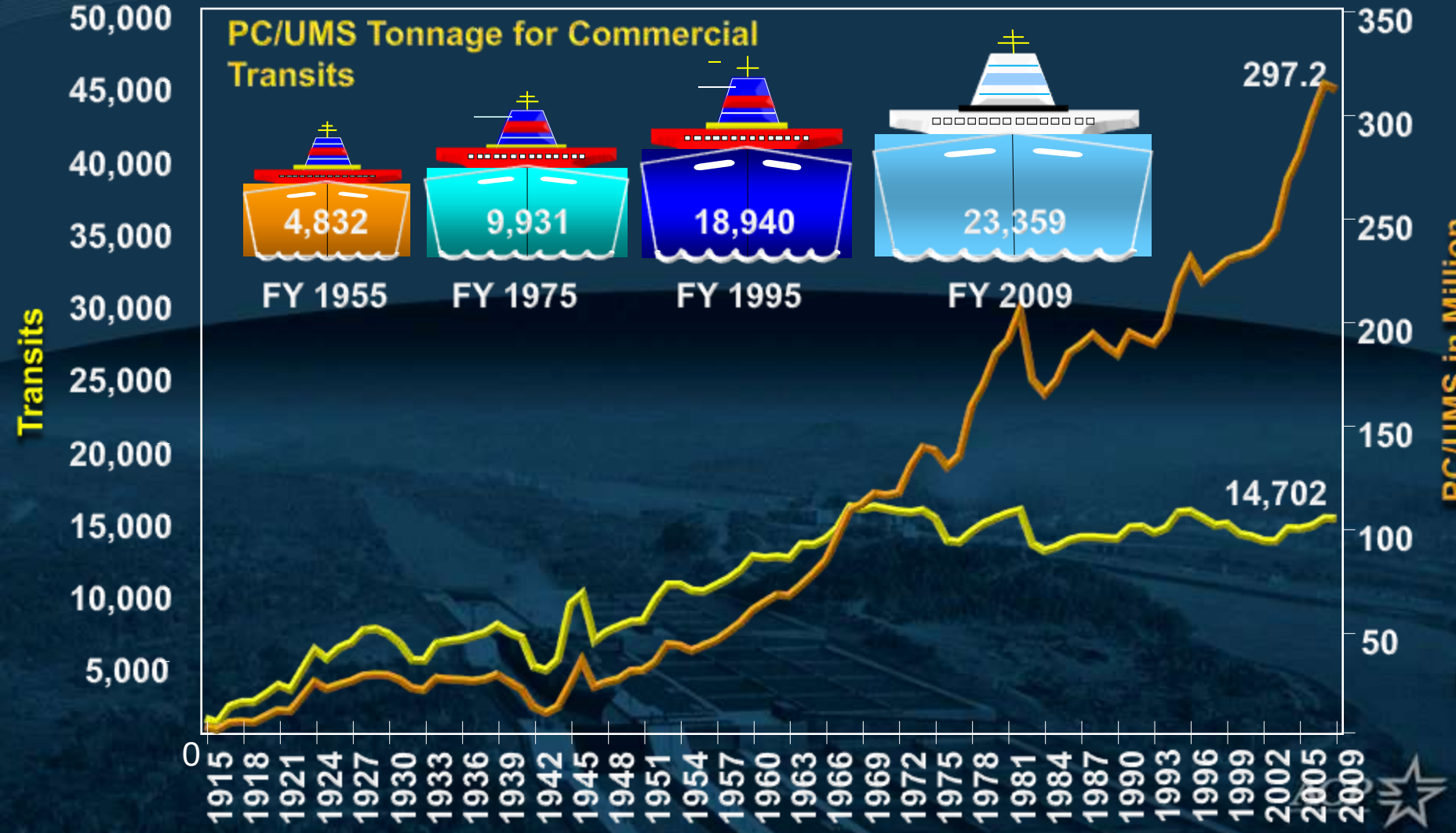
Transits vs. PC/UMS Tonnage FY1915 – FY2009




Panama Canal in 1914


Panama Canal Today

Requirements by Vessel Type and Size

< 80′ BEAM

- Gatun Lockage in One Hour
- Requires 4 Locomotives
- Assisted by 3 Tugs
- 1 Pilot
- No Transit Restriction

PANAMAX

- Gatun Lockage in 2 Hours
- Requires 6-8 Locomotives
- Assisted by 7-10 Tugs
- 2-3 Pilots
- Daylight one-way traffic through Gaillard Cut, and daylight transit through the locks of vessels 900′ in length

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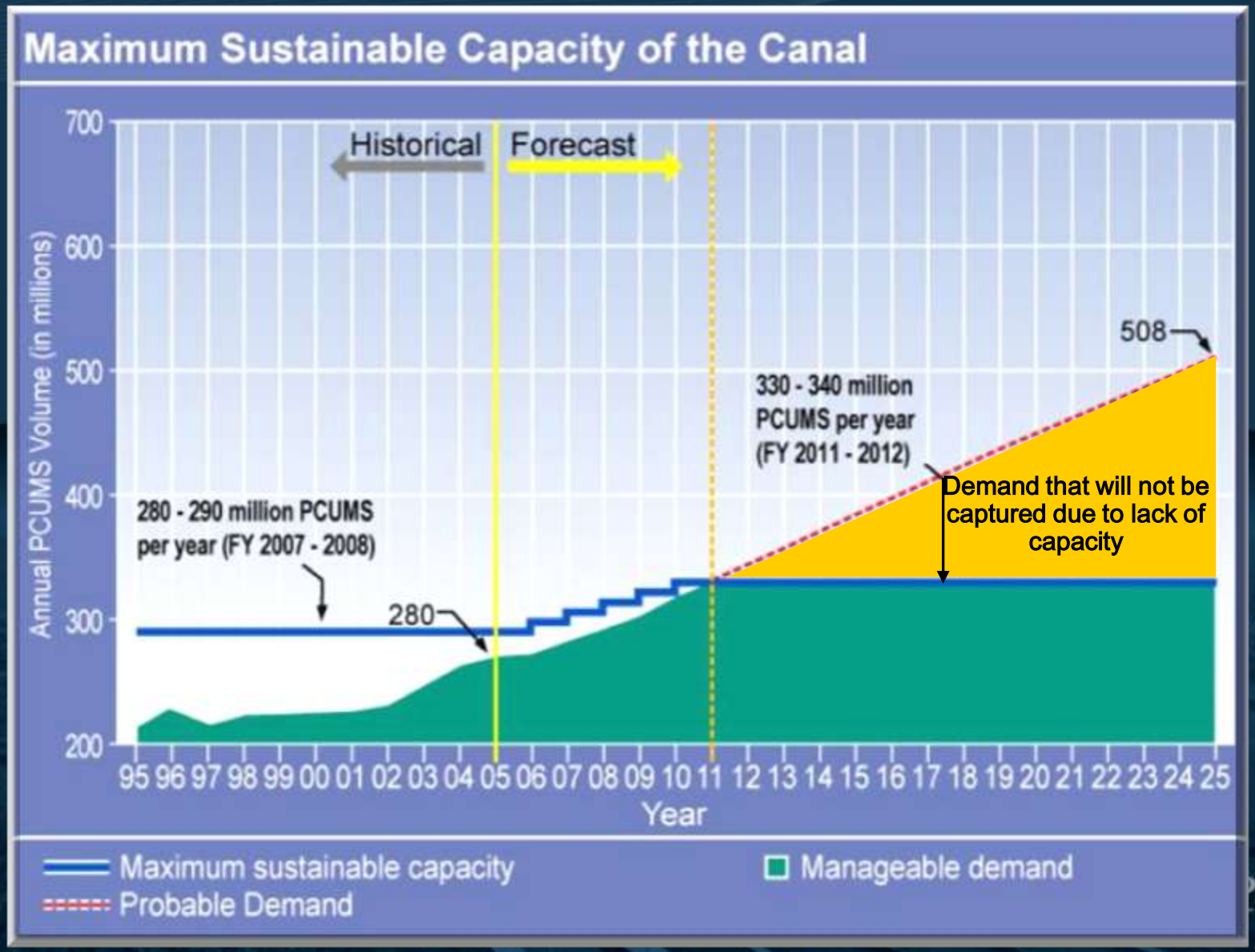
Maximum Capacity of the Improved Canal



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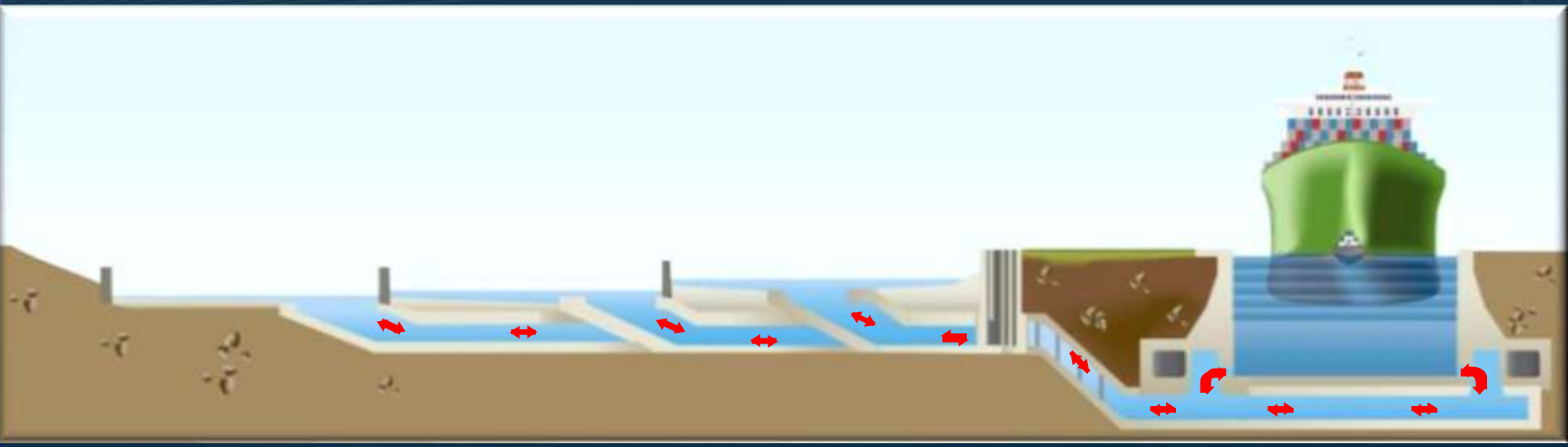
Program Components

$5.25 billion investment

PostPanamax Locks Operation
GUPC's Proposal



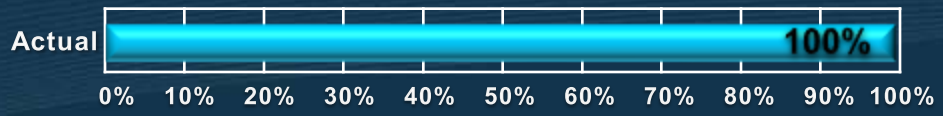
With the water saving basins
the new locks will use 7% less water
than the existing locks

Work on the Pacific Access Channel January 2010

Projects Under Execution

Pacific Access Channel - Phase 1

COMPLETED



7.3 M m³ excavated

Contract Scope: 7.4 Mm³, cleaning 146 hectares of MEC and relocation of a 3.6 km stretch of Borinquen road

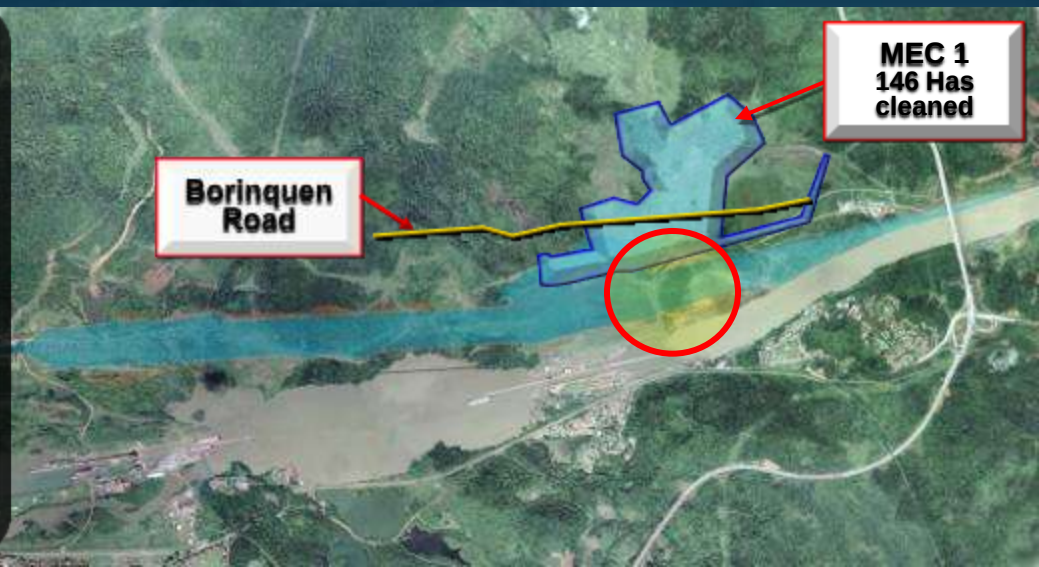
Awarded: July 17, 2007

Company: Constructora Urbana S.A.

Amount Awarded: B/.41,094,000.00

Amount Paid: B/. 40,431,196.00

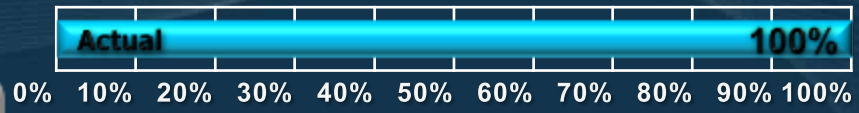
- Contractor passed final inspection – project is completed
- Administrative closure in process



Projects Under Execution

Pacific Access Channel - Phase 2

7.4 M m³ excavated



COMPLETED

Contract scope : 7.5 Mm³ - excavation, relocation of a 1.3 Km. stretch of Borinquen road, diversion of a 3.5 Km. stretch of Cocoli River.

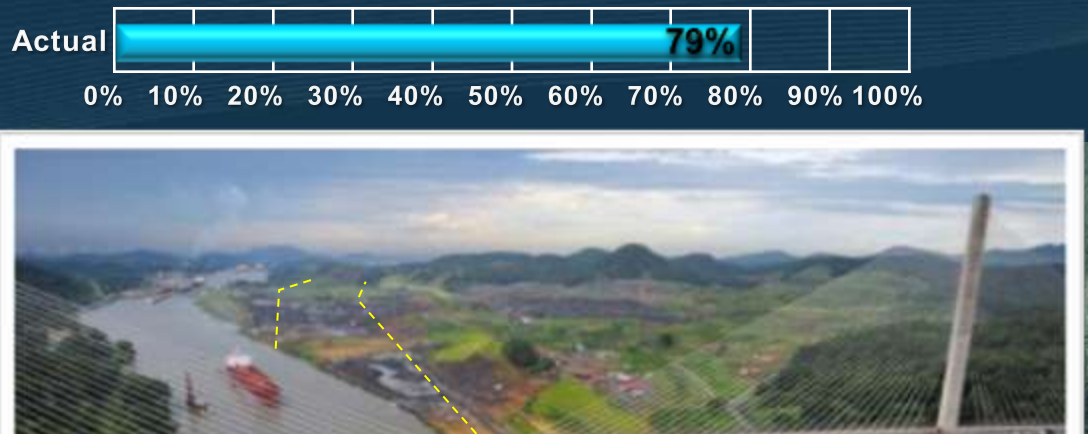
Contract Awarded to the consortium Cilsa-Minera María for B/. 25,489,200.30.

Award date: November 27, 2007.

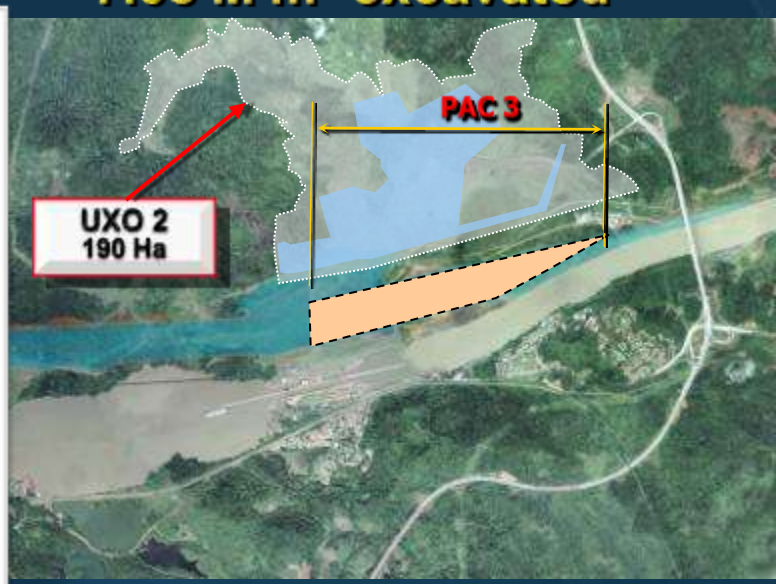
Projects Under Execution

Pacific Access Channel - Phase 3

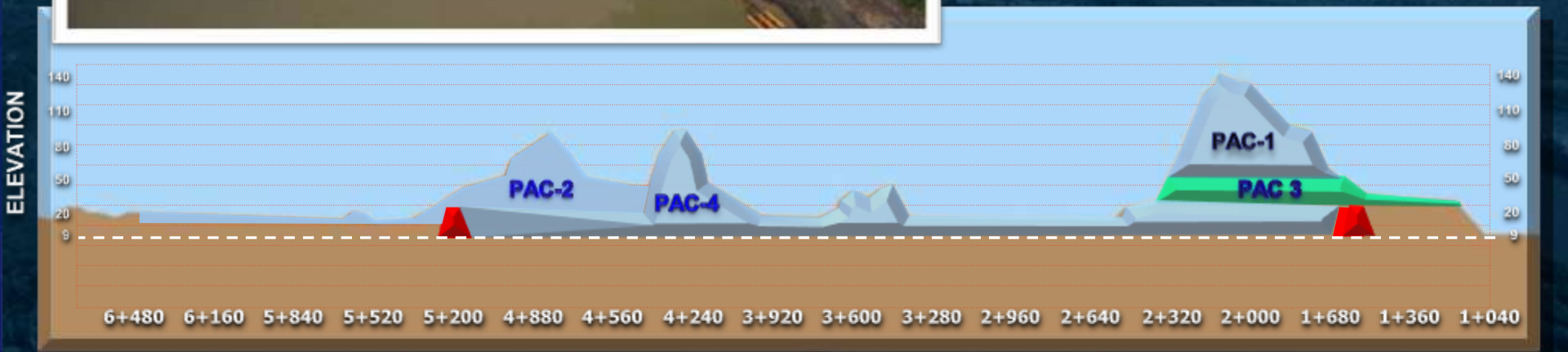
Awarded: 16-DEC-2008
Company: Constructora MECO, S.A.
Excavation: 8 M m³
Amount Awarded: $ 36, 659,852.28
Cleaning remaining 190 has in T6 area



7.08 M m³ excavated



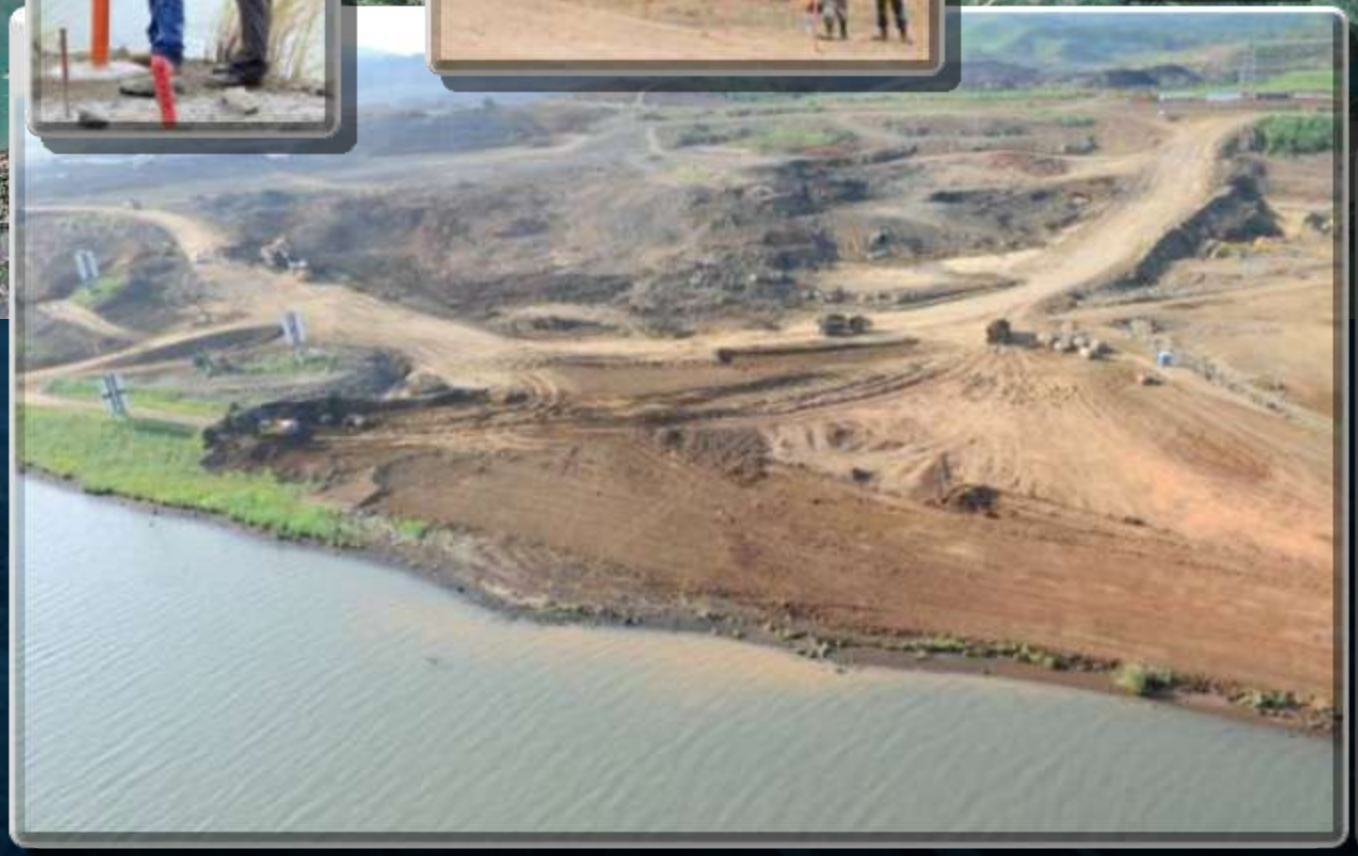
190 hectares cleared



Projects Under Execution

Pacific Access Channel – Phase 3

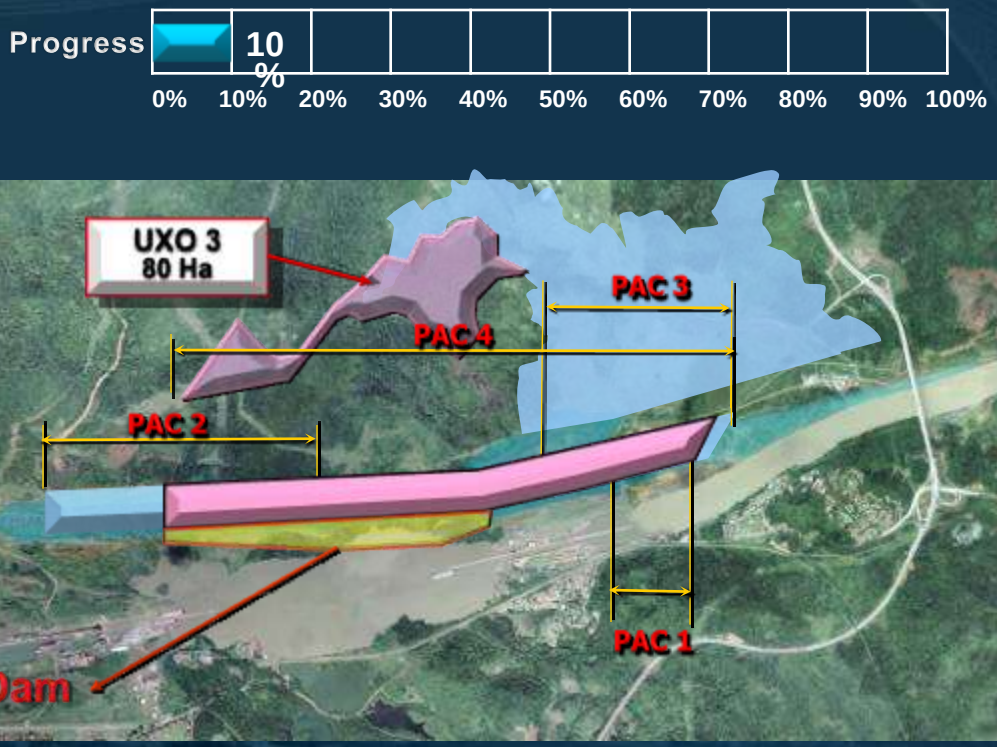
190 hectares cleared – 100%

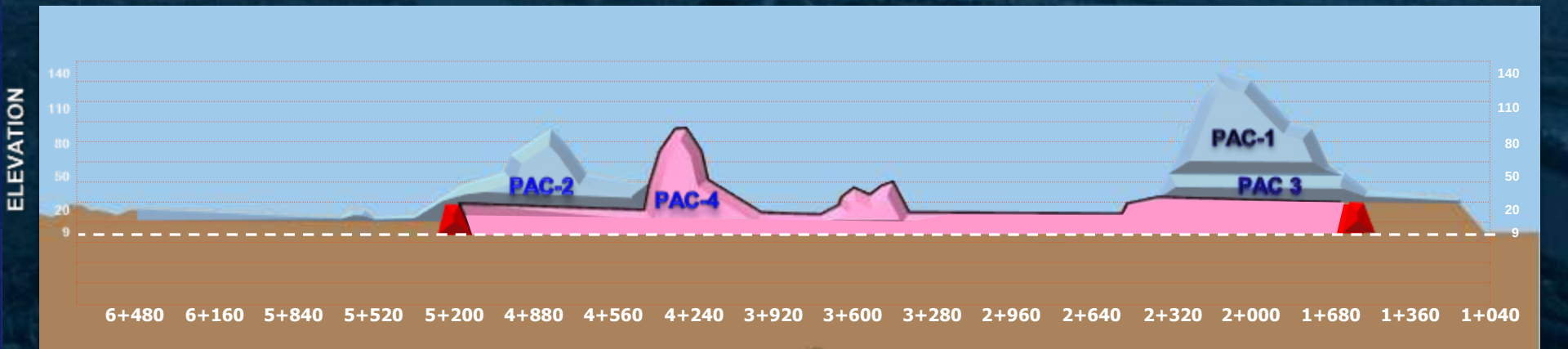


Pacific Access Channel – Phase 4

26 M m^3 of dry excavation

- Bid announcement: July 31, 2009
- Proposals receipt: 22-DEC-09
- Awarded: 7-JAN-10
- Company: FCC-ICA-MECO Consortium
  - FCC: Fomento de Construcciones y Contratas
  - ICA: Ingenieros Civiles Asociados
  - MECO: Constructora Meco S.A.
- Amount Awarded: $ 267,798,795.99
- Order to proceed: 22-JAN-10
- Expected works startup date: 27-APR-10
- Estimated completion date: 2-AUG-13 (1,288 days)





Environmental and Social Monitoring and Control

- Environmental Impact Assessment
- Ecological Compensation paid to ANAM
- Wildlife Rescue Plan
- Archeological Rescue
- Paleontological Resources Studies
- Reforestation
- Air and Water Quality Monitoring
- Noise and vibrations monitoring
- Meetings with communities
- Report and inspection by independent consultant
- Inspections by ANAM

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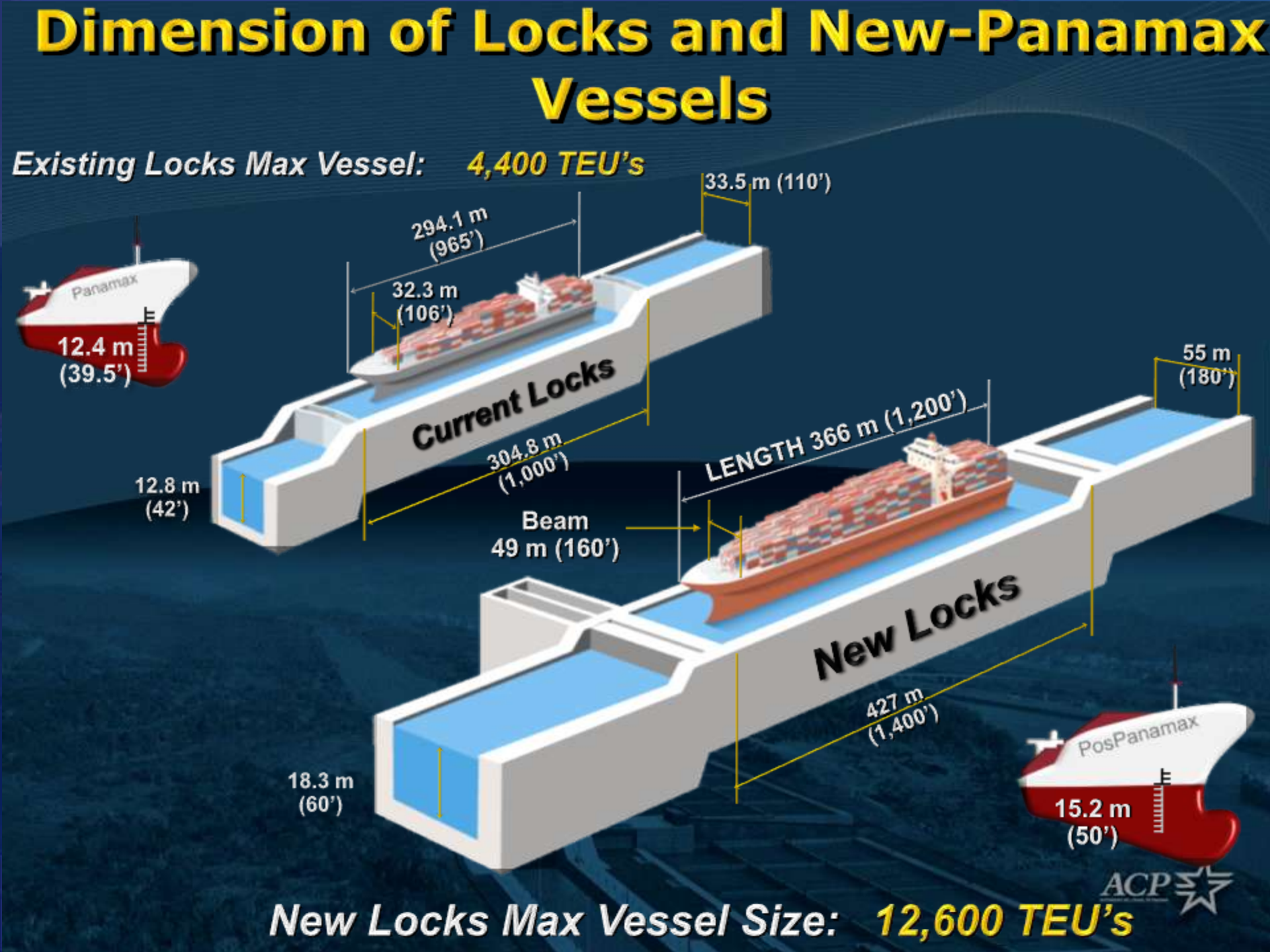
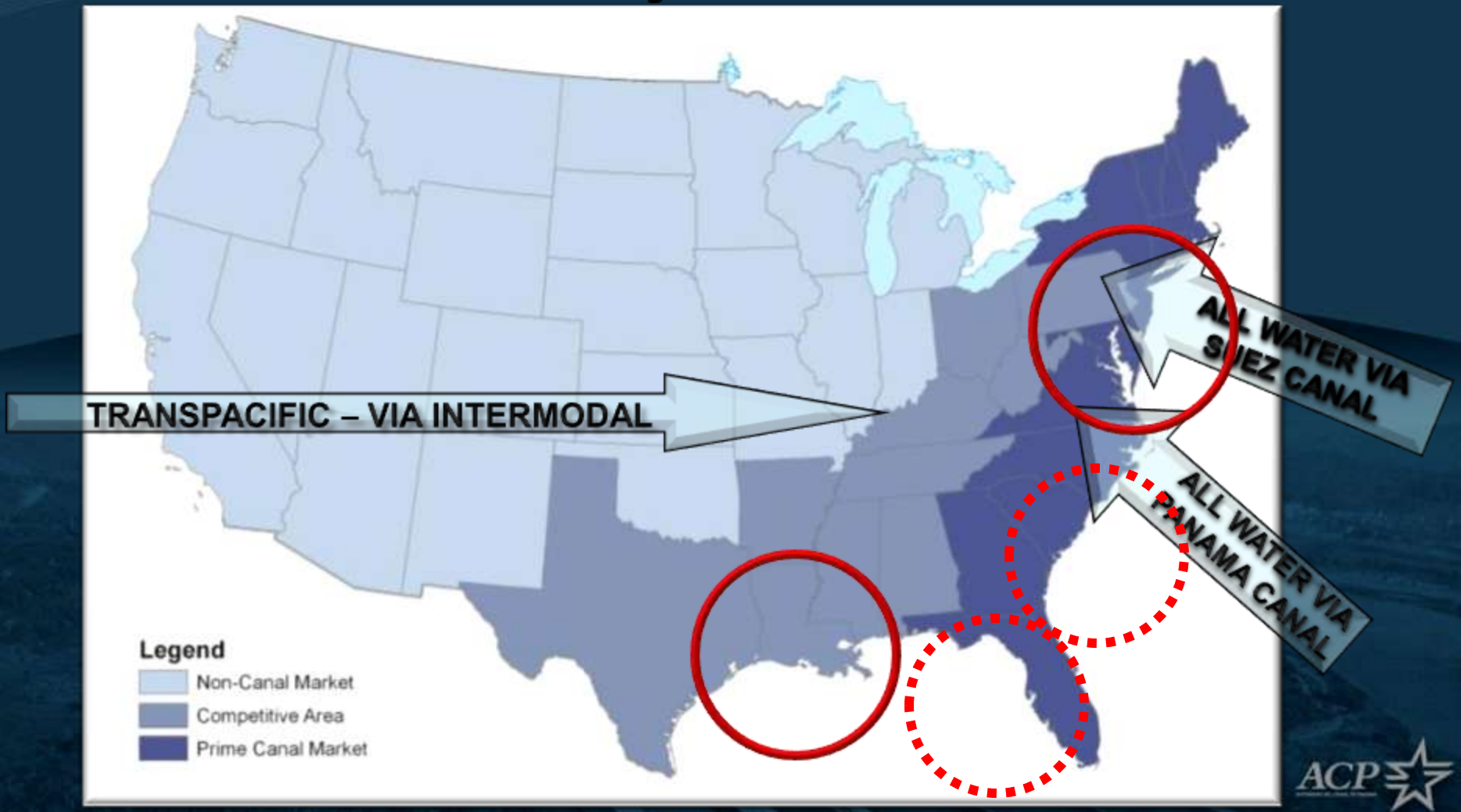
Dimension of Locks and New-Panamax Vessels



Canal and West Coast routings are most competitive in the US heartland

Canal market share for Chinese imports of finished goods to the US ranges from 1% in the West region to 81% in the Northeast



Port Authorities – Panama Canal Expansion Projects

Location	Project	Estimated Completion
Port of Palm Beach	Development of logistics center for storage and distribution of cargo to the South Florida region.	
Jacksonville Port Authority	Development of container terminals by MOL (already in use) and Hanjin with total additional capacity of 1.5M TEU	2011 - 2012
Maryland Port Administration	Construction of the new 50-foot berth at Baltimore's Seagirt Marine Terminal.	2012
Manatee County Port Authority	The 788 acre Logistics Port Manatee (LPM) multimodal logistic park (Port Manatee's first container terminal); directly served by CSX railroad.	2011

Source: MERC with information provided by Port Authorities, January 2010.

Port Authorities – Panama Canal Expansion Projects

Location	Project	Estimated Completion
Georgia Ports Authority	Deepening of the Savannah River Channel from 42′ to 48′.	2014
Port of Miami	Deepening draft from 42′ to 50′ and the construction of Port of Miami Tunnel Project to expedite delivery of goods.	2014
Philadelphia Regional Port Authority	Dredging the main shipping channel of the Delaware River from 40′ to 45′.	Within 5 – 7 years
Port Authority of New York & New Jersey	Harbor deepening project to 50′; $10 million approved to analyze alternatives for Bayonne Bridge (height: 151′).	Harbor deepening to be completed in phases from 2010 to 2014.
Port of Houston Authority	The Bayport Container & Cruise Terminal project (Phase 1 is completed); future capacity of 2.3M TEU.	All phases completed in 15-20 years
Broward County's Port Everglades Department	Inauguration of Cruise Terminal 18 for megaships.	Nov. 2009

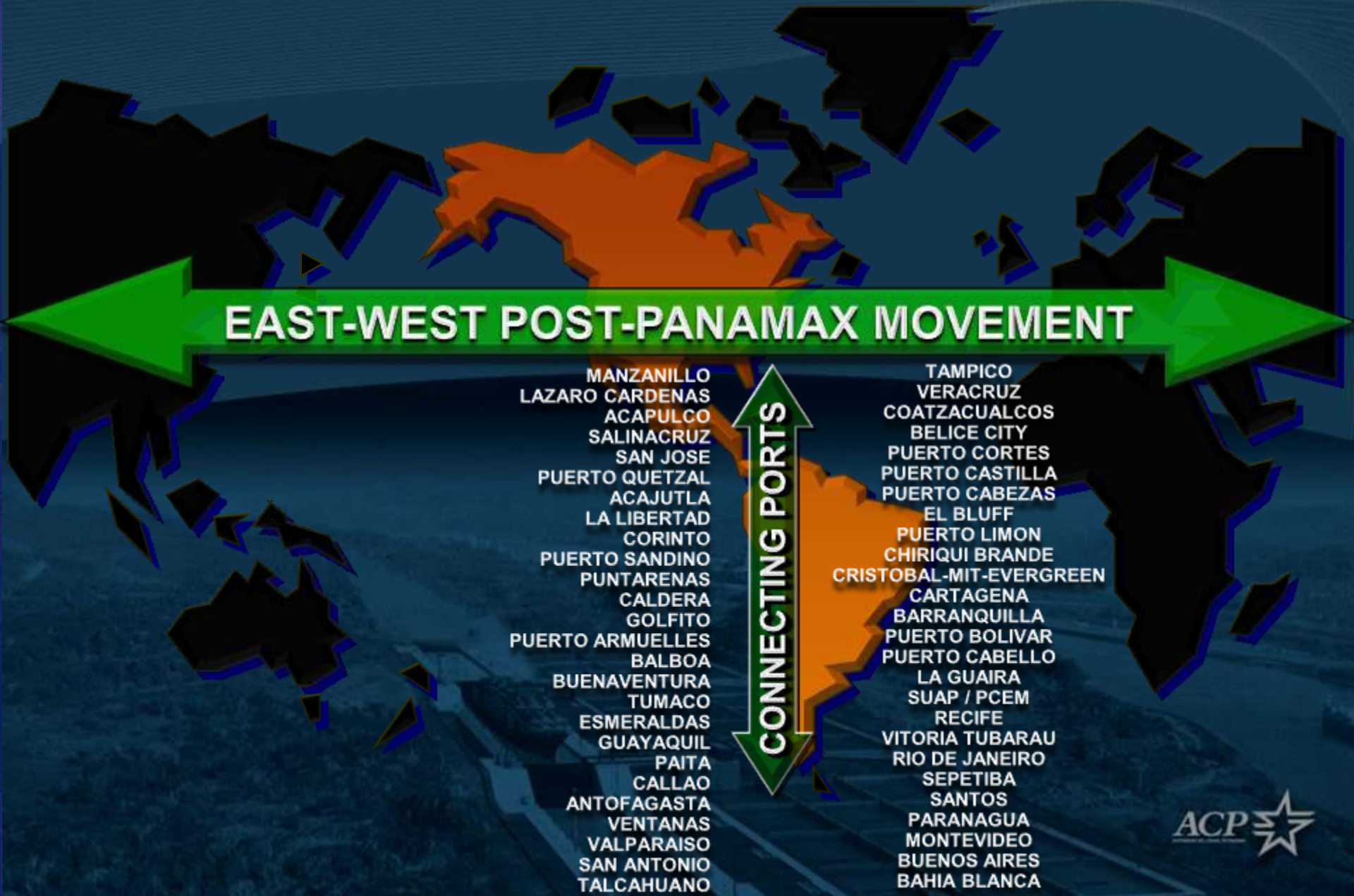
Source: MERC with information provided by port Authorities, January 2010.

CMA CGM - PEX 3 rtw eb

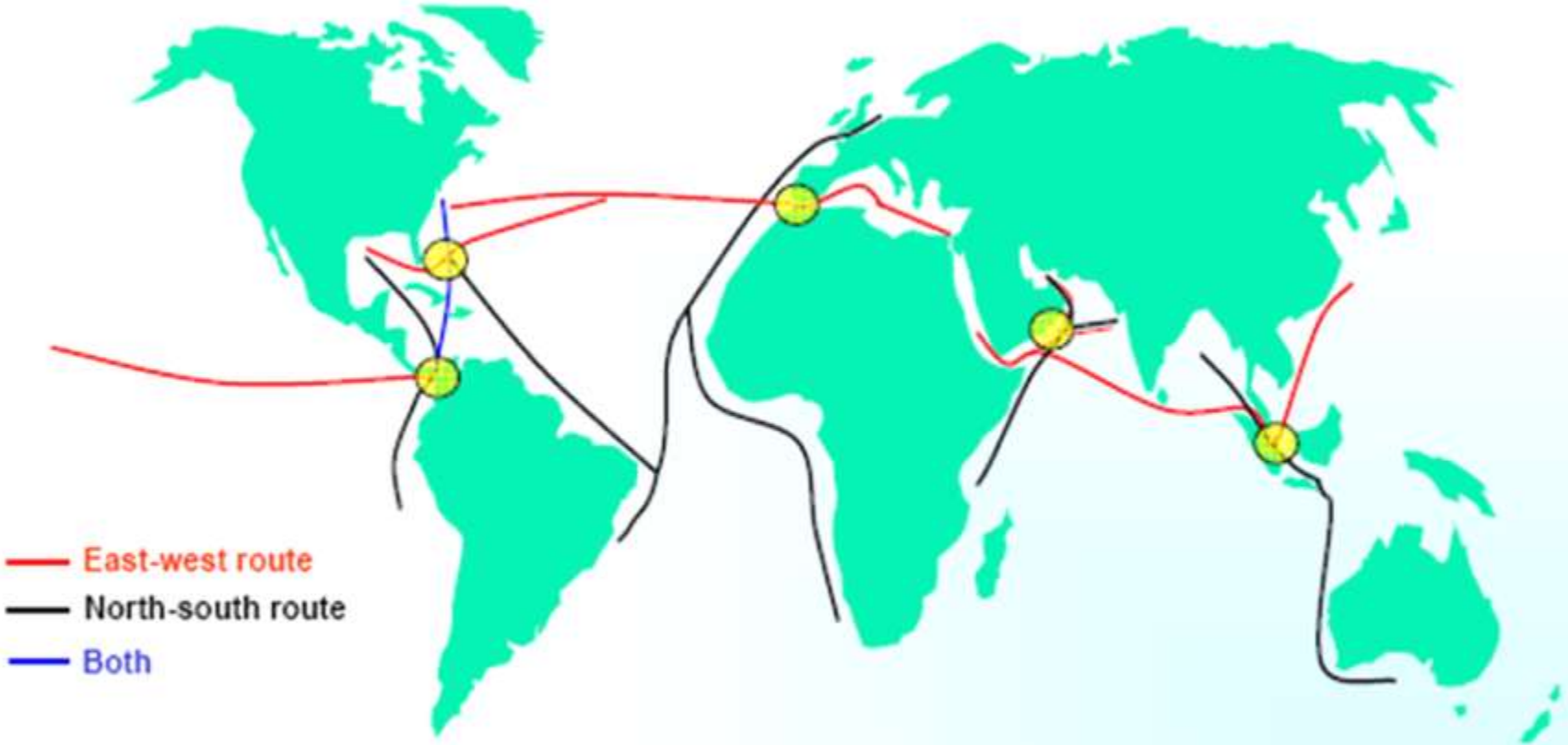
Frequency: 7 days
Number of Vessels deployed: 11
Average Vessel Size: 4,739
Vessel Size Range: 3,045 – 5,078 TEU.

Source: Compair Data, July 2010

Short Sea Shipping Network



Trade route cross-roads



A major advantage for developing relay traffic, as it provides the possibility of linkages between multiple services on both east-west and north-south routes.

Drewry

Panamax Ships Will Maxime Their Cargo Capacity

29% more cargo capacity for the same ship

ACP

Expectations for the Tanker Vessels

- The size of the present Canal has caused the logistics of the crude oil trade and some other trades to avoid the Canal.
- It is expect to see a strong impact on oil products trade through the Canal destined to both coasts of the U.S., as new locks dimensions allow for tanker vessels to improve their utilization rates.
- When maritime cycles are at peak, it may even become attractive to use the widened Canal to reposition vessels in ballast to collect cargo.
- In addition, crude oil tankers up to aframax size will be able to transit the Panama Canal fully laden
- Smaller vessels may benefit from a reduction in congestion at the Canal

LNG World Fleet

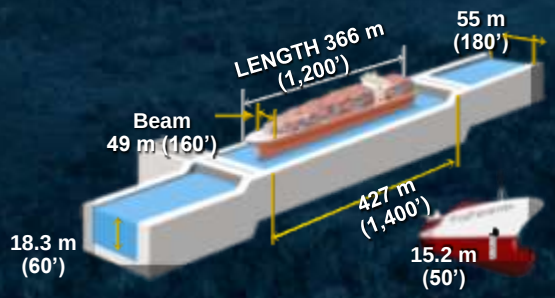
- **Today**

Only 6.3% of the LNG world fleet fits the Panama Canal locks

	Existing Fleet	Orderbook
Beam	6.3%	20.8%
LOA	83.1%	91.7%
Draft	60.5%	50.0%

- **By August 15, 2014…**

	Existing Fleet	Orderbook
Beam	80.9%	70.8%
LOA	100.0%	100.0%
Draft	99.5%	100.0%



Source: Informa - Fairplay

ACP

Distance Comparison

Castillo de Villalba 138,000 cu.m.

Dampier – Sabine Pass

Via Panama: 11,686 nm

Via Cape Good Hope: 12,706 nm

Savings of 898 nm, at 19.5 Knots, 2 days less of voyage

ACP

Distance Comparison

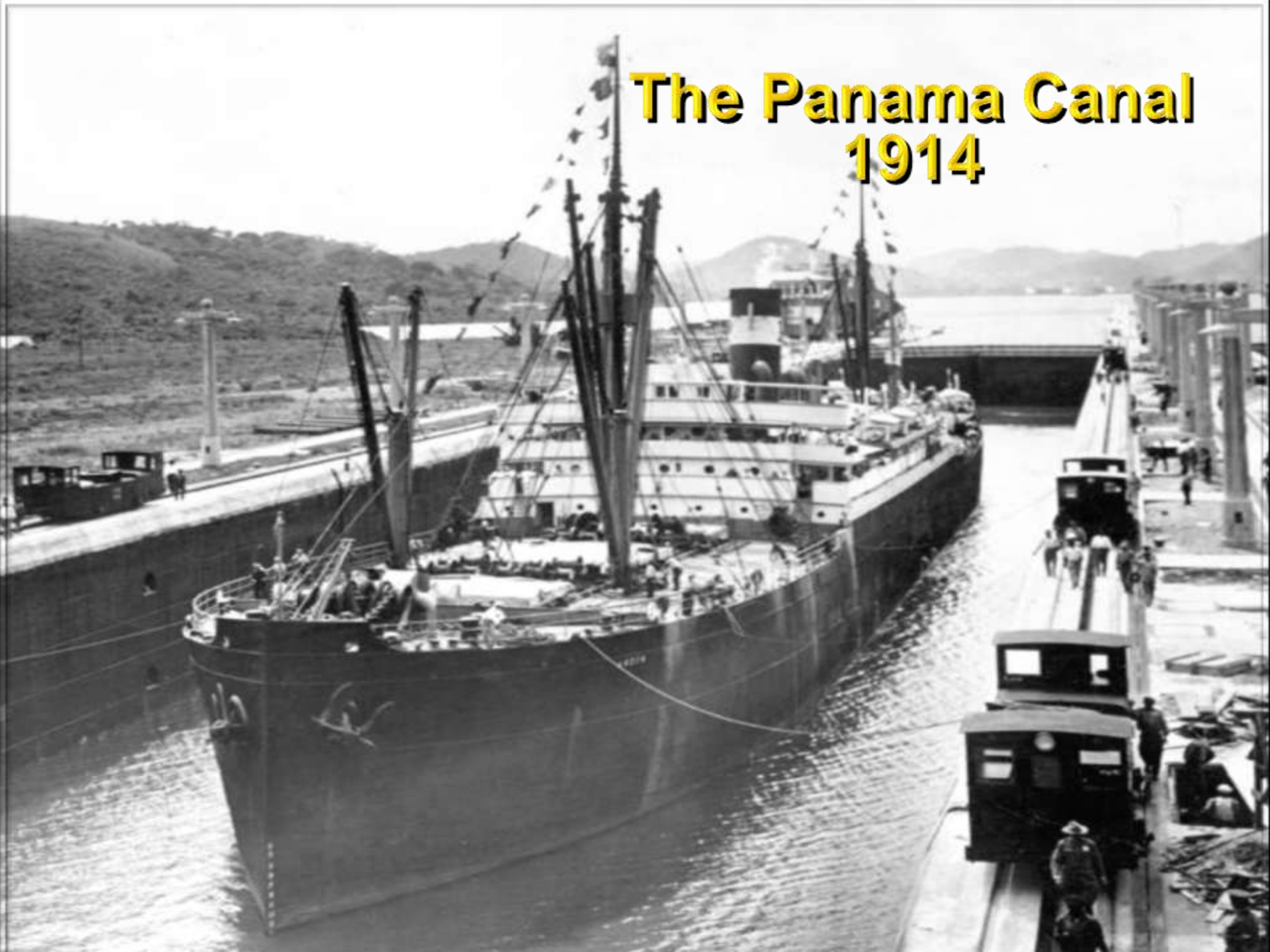
Peru – U.S. Gulf

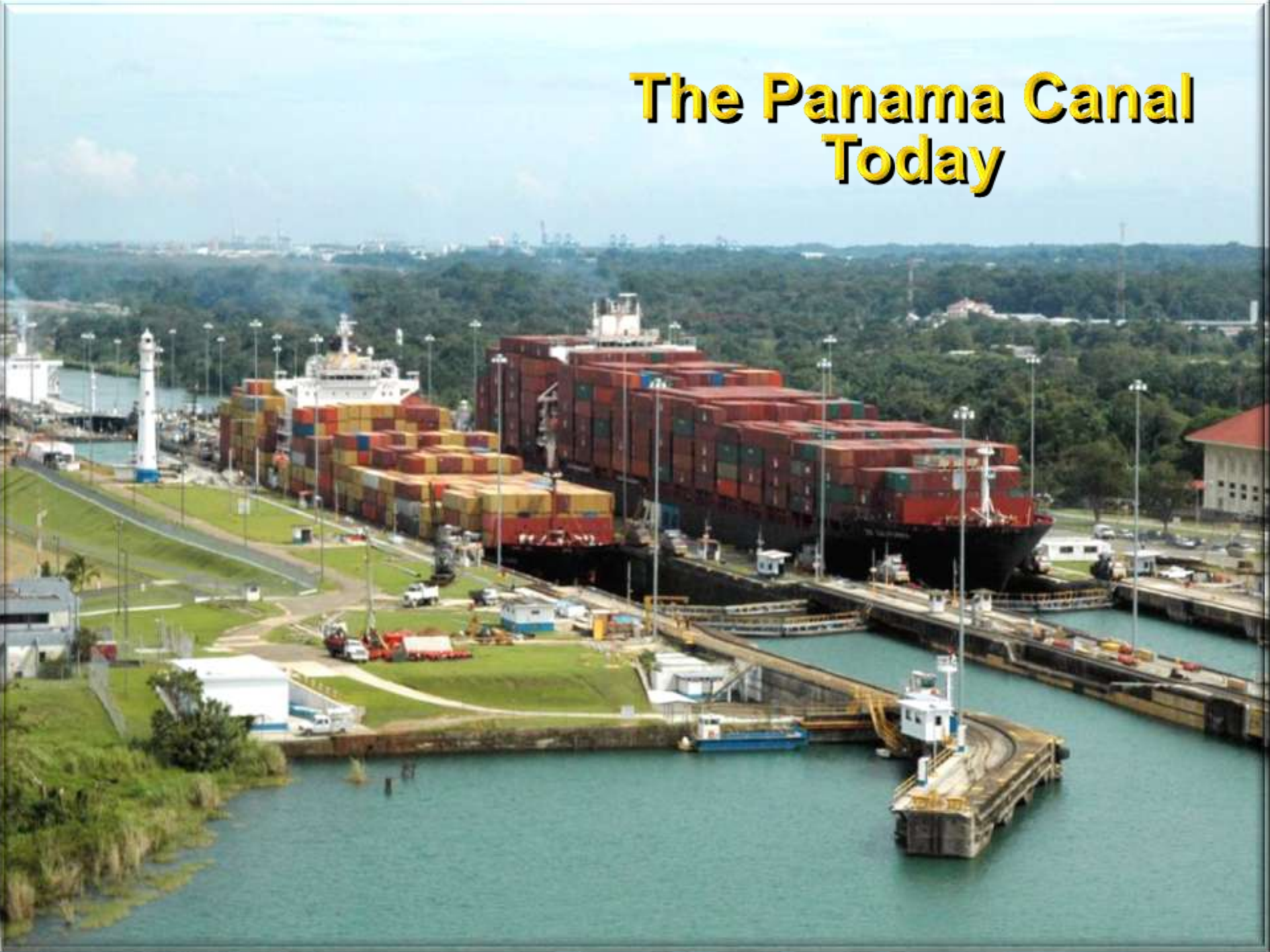
Panama: 2,850 nm

Magellan Strait: 10,083 nm

Savings of 7,233 nm, at 19.5 Knots, 15 days less

ACP


The Panama Canal
1914


The Panama Canal
Today


Colon Free Zone
Transisthmian Pipeline
CRISTOBAL
CCT (Evergreen)
MIT
TELFERS ISLAND
Fiber Optic Duct
PORT OF BALBOA
TRANS-ISTHMIAN ROAD
OPTIC FIBER DUCT
ALBROOK AIRPORT
EXPANSION
Panama – Colon Highway
Tocumen International Airport
Transithmian railroad
Special Economic Zone
Panama-Pacific
Former Howard AFB
Banking Center


The Panama Canal
2014


Thank You!