



MARITIME ADMINISTRATOR
CHIP JAENICHEN



Beyond Traffic

2045

TRENDS AND CHOICES



Population Increase

2015: **320 million people**
2045: **390 million people**

In 30 years our population is expected to grow by about

70 million

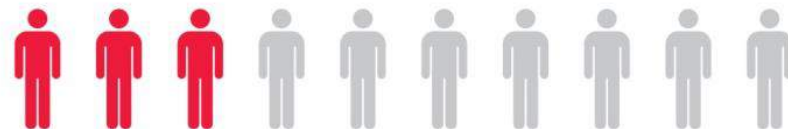
... that's more than the current populations of



Older Americans — Redefining Longevity

By 2045, the number of Americans over age 65 will increase by

77%



About **one-third of people over 65** have a disability that limits mobility. Their access to critical services will be more important than ever.

Millennials — Shaped by Technology

There are **73 million Millennials** aged 18 to 34. They are the first to have access to the internet during their formative years and will be an important engine of our future economy.

Millennials are driving less. By the end of the 2000s, they drove over **20% fewer** miles than at the start of the decade.



Income Inequality

10% of the population takes home **one-third** of our national income.

Transportation is the **second-largest** expense for U.S. households.



Bumper-to-Bumper

On average, we spend

over 40 hours



stuck in traffic each year

The annual financial cost of congestion is

\$121 billion



Megaregions and Shifts in Population Centers

11 megaregions are linked by transportation, economics, and other factors.

They represent over **75%** of our population and employment.

In 2014, **365,000** people moved to the South—up **25%** from 2013—and moves to the West doubled.

Transportation and the Economy

By 2045, the U.S. economy is forecast to grow by **115%** to **\$36.7 trillion**—and the transportation sector will represent about

\$1.6 trillion

of total Gross Domestic Product.

Global Demand for U.S. Products

Global trade is one of the brightest spots in our economy.

U.S. exports reached **\$2.3 trillion** in 2013, setting a new record for the 4th straight year

\$1 billion in exports = **5,000 U.S. jobs**

The U.S. energy boom

is placing unprecedented demand on our transportation system.

42x the 9,500 carloads of crude oil in 2008

Crude oil production is up **50%** since 2008

Rail carried **400,000** carloads of crude oil in 2013

By 2040, U.S. freight volume will grow to **29 billion tons**—an increase of **45%**.



Major gains in freight movement are predicted by 2040

By 2040, the **value** of freight will grow to **\$39 trillion**—an increase of **125%**.



Freight Movement is Multimodal

Every mode of transportation moves freight, but trucking is the primary mode of freight travel.

54 million tons of freight move across our nation every day



Truck

2012

(in tons)

13.2 billion

+43%

2040

18.8 billion



Rail

2.0 billion

+37%

2.8 billion



Waterborne

975 million

+10%

1.1 billion



Air

15 million

+250%

53 million

System Performance and the Cost of Congestion

By 2040, nearly **30,000** miles of our busiest highways will be clogged on a daily basis.

Truck congestion wastes **\$27 billion** in time and fuel annually.



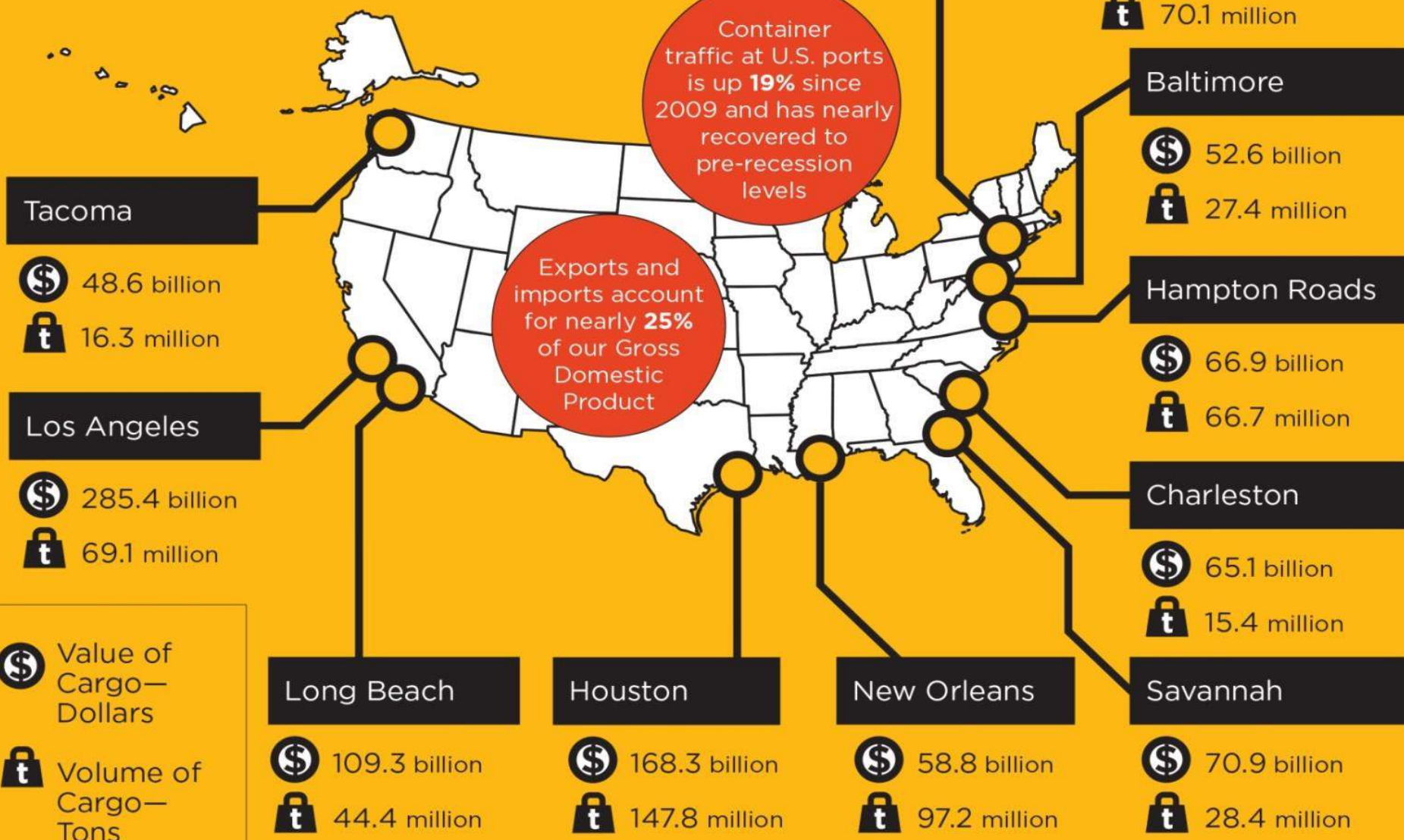
Top Ten U.S. Ports in 2014 (by Value of Cargo)

65% of America's imported and exported containerized freight (by value) flows through ten ports.

Ports are opportunity multipliers—economic engines, fueling good jobs not just on our coasts, but across the country.

Container traffic at U.S. ports is up **19%** since 2009 and has nearly recovered to pre-recession levels

Exports and imports account for nearly **25%** of our Gross Domestic Product



More and more, the transportation sector is relying on data to drive decisions, and on technology to reimagine how we move people and goods.

Connected Vehicles

Vehicles that communicate are the latest innovation in a long line of **successful safety advances**.

The motor vehicle fatality rate has dropped by

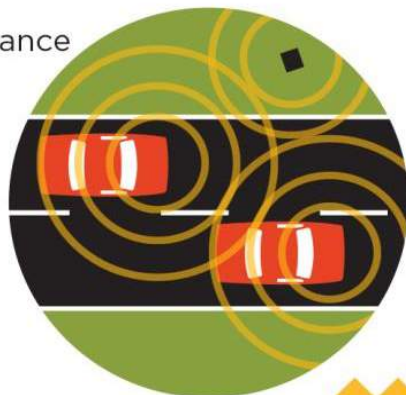
80%

over the past 50 years.

Connected vehicles and new crash avoidance technology could potentially address

81%

of crashes involving unimpaired drivers.



Robotics

Advances in robotics are changing transportation operations and will impact **the future transportation workforce**.

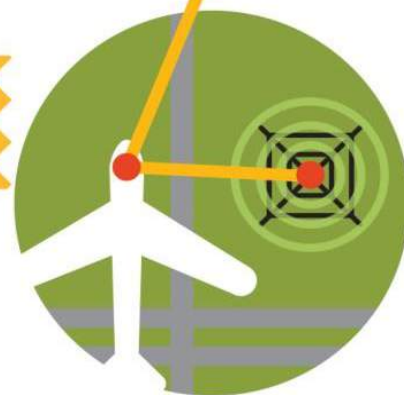
Robots will perform vital transportation functions, such as critical infrastructure inspection.



NextGen

GPS and new technologies are leading to a **safer, more efficient** U.S. airspace.

By 2020, **one-second updates** will pinpoint the **aircraft location and speed** of 30,000 commercial flights daily.



Real-time Travelers

Mobile access to everything from **traffic data** to **transit schedules** informs our travel choices.

90% of American adults own a mobile phone.

20% use their phones for **up-to-the-minute** traffic or transit information.

Smartphones are regularly used for **turn-by-turn navigation**.



Big data is all around us. Global data generated is projected to grow by **40%** annually.

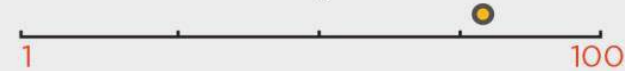
Data enables innovative transportation options, such as **car-sharing**, **ride-sharing**, and **pop-up bus services**, and more **rapid delivery of goods**.



Our changing climate

is disrupting transportation systems in the U.S. and abroad.

100-year devastating storms used to occur **once a century** ...



... but with the climate changing, they could occur **every 3 to 20 years** (by 2080).



We're Heating Up

Average U.S. temperatures are rising.

By 2050, our temperature is predicted to **rise 2.5° F**

Scientists say we need to avert a **2° F increase** in temperature to avoid the most catastrophic impacts of climate change

Globally, the **10 warmest years** have occurred since 1998

U.S. **droughts** and western **wildfires** cost **\$30+ billion** in 2012 alone

In extreme heat:

Roads deteriorate faster

Truck tires are prone to blow out

Rail track buckles

Runways soften

Inland waterway traffic is disrupted during droughts

Rising Sea Levels Will Disrupt Transportation

Louis Armstrong (New Orleans)

Ft. Lauderdale

San Francisco

Oakland

LaGuardia

Miami

Philadelphia

Newark

Reagan

Tampa

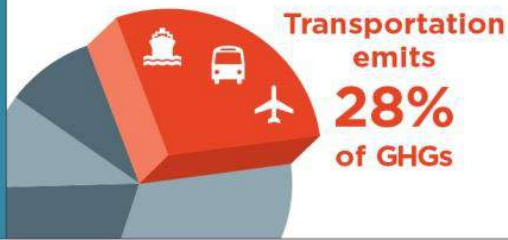
JFK

U.S. Airport Elevations

Sea level is projected to rise up to **4 feet** (2100)

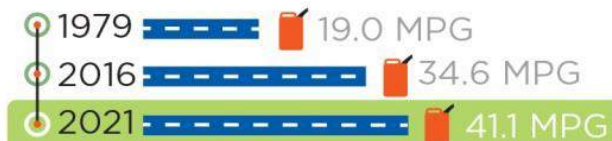
Sea level is projected to rise up to **1 foot** (2045)

The transportation sector is the second-biggest source of greenhouse gases (GHGs) in the U.S.



New stronger fuel economy standards will double

the efficiency of our cars and trucks. Corporate Average Fuel Economy Standards have **saved 14 billion tons of CO₂** emissions since 1970.



Transportation Investment

Improving the condition and performance of the transportation system will cost



\$120 billion

for highways and bridges between 2015 and 2020. Current annual spending at all levels of government—federal, state and local—is just

\$83.1 billion.



\$43 billion

for public transportation. Meanwhile, annual capital spending is just

\$17.1 billion.

To compete in the global economy, the U.S. needs a world-class transportation system. Some of our most critical transportation infrastructure is crumbling.

65% of U.S. roads are in **less than good condition**



25% of U.S. bridges **need significant repair** or can't handle today's traffic



50% of locks and chambers are **more than 50 years old**



Overall U.S. Infrastructure Grade

D+

Our World Standing

Quality of roads
2008 = 8th

Quality of roads
2014 = 16th

Transportation Spending is in Decline

Our highway and mass transit accounts are trending toward the red. The Federal gas tax is no longer enough to address our transportation needs.

The Federal gas tax has not increased for over 20 years ...



1993

2015

... and the value of the dollar has declined.

Transportation Trust Fund projected annual shortfall



Transit

Highway

Oregon Pilots Road User Charges

Oregon is one of many States seeking new revenues to make up for transportation budget shortfalls.



During a recent pilot program in Oregon, participants paid **1.56 cents per mile driven** rather than a state tax of **30 cents per gallon of gasoline.**

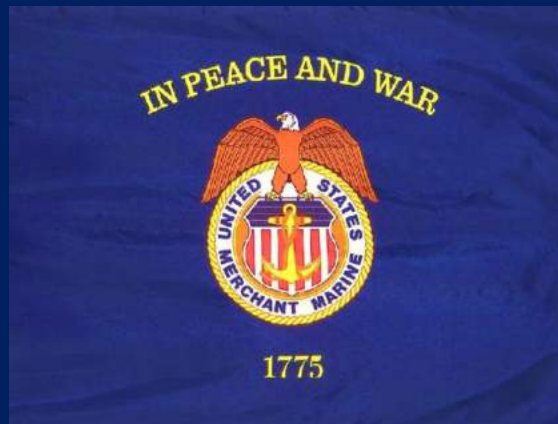
1.56¢



Over the next decade higher fuel economy standards will result in more than **\$50 billion** in lost gas tax revenues.



Why does the Maritime Industry Matter?





OUR MISSION

To promote the development and maintenance of an adequate, well-balanced United States Merchant Marine, sufficient to carry the Nation's domestic waterborne commerce and a substantial portion of its waterborne foreign commerce, and capable of service as a naval and military auxiliary in time of war or national emergency.



MARITIME TRANSPORTATION TODAY

MARINE TRANSPORTATION MOVES

- OVER 90% OF GLOBAL TRADE VOLUME
- OVER 70% OF GLOBAL TRADE VALUE

MORE THAN 75% OF ALL U.S. WATERBORNE FOREIGN TRADE VOLUME PASSES THROUGH U.S. PORTS

EACH YEAR, SHIPS MOVE TWO BILLION TONS OF FREIGHT THROUGH OUR PORTS

GLOBAL WATERBORNE TRADE HAS GROWN FIVEFOLD SINCE 1970

U.S. INLAND WATERWAYS AND RIVERS CARRY THE EQUIVALENT OF 51 MILLION TRUCK TRIPS/YEAR

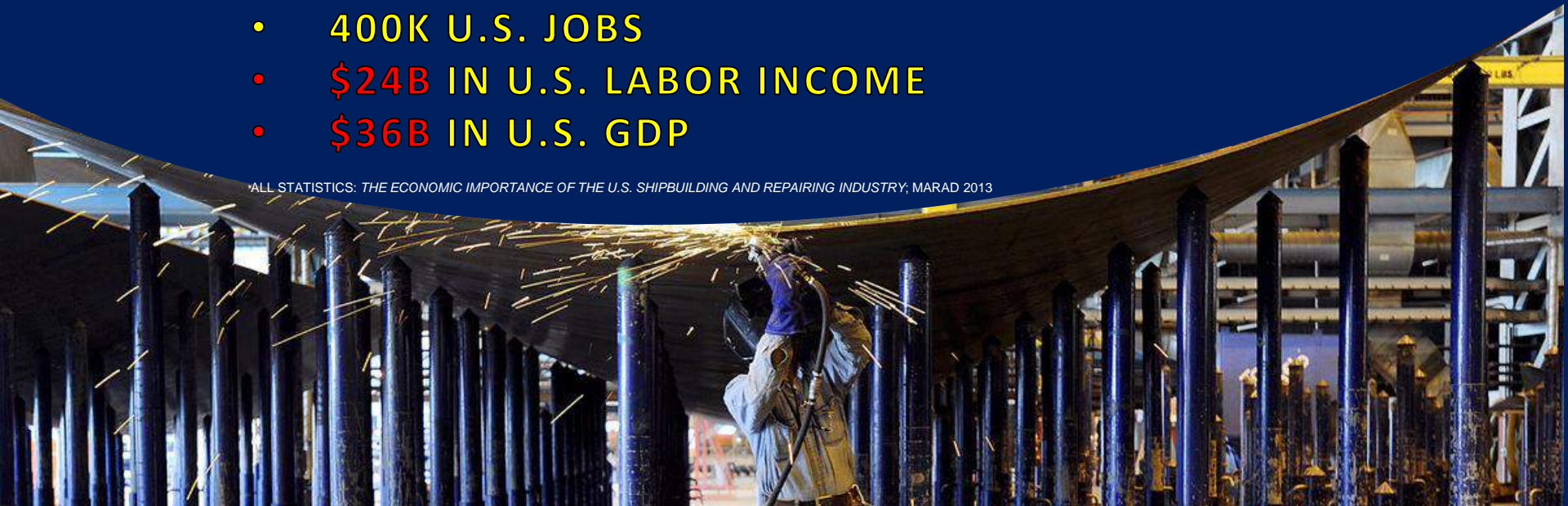
OVER 566 MILLION TONS OF FREIGHT VALUED AT MORE THAN \$152 BILLION MOVE THROUGH THE INLAND WATERWAY SYSTEM ANNUALLY

THE 15% OF U.S. COUNTIES ADJACENT TO THE COAST PRODUCE 45% OF GDP

U.S. SHIPBUILDING AND REPAIR INDUSTRY

- 117 ACTIVELY-BUILDING U.S. SHIPYARDS IN 26 STATES
- OVER 200 SHIPYARDS ENGAGED IN SHIP MAINTENANCE AND REPAIRS
- DIRECT IMPACT
 - 110K U.S. JOBS
 - \$8B IN U.S. LABOR INCOME
 - \$10B IN U.S. GDP
- INDIRECT IMPACT
 - 400K U.S. JOBS
 - \$24B IN U.S. LABOR INCOME
 - \$36B IN U.S. GDP

*ALL STATISTICS: THE ECONOMIC IMPORTANCE OF THE U.S. SHIPBUILDING AND REPAIRING INDUSTRY; MARAD 2013



SHIPBUILDING RESURGENCE

- OVER 30 LARGE, SELF-PROPELLED, OCEANGOING JONES ACT-ELIGIBLE TANKERS, ATB UNITS AND CONTAINERSHIPS UNDER CONSTRUCTION OR ON-ORDER AT U.S. SHIPYARDS
- U.S. OFFSHORE VESSEL DELIVERIES DOUBLED OVER THE PAST 5 YEARS:
 - 38 IN 2010 TO 78 IN 2014
- U.S. TANKER DELIVERIES DOUBLED OVER THE LAST DECADE:
 - FROM 3 IN 2004 TO 7 ON ORDER IN 2015
- INCREASED ACTIVITY HAS DOUBLED OR TRIPLED EMPLOYMENT FOR SOME COMPANIES

ALL STATISTICS: MARAD OFFICE OF SHIPYARDS AND MARINE ENGINEERING

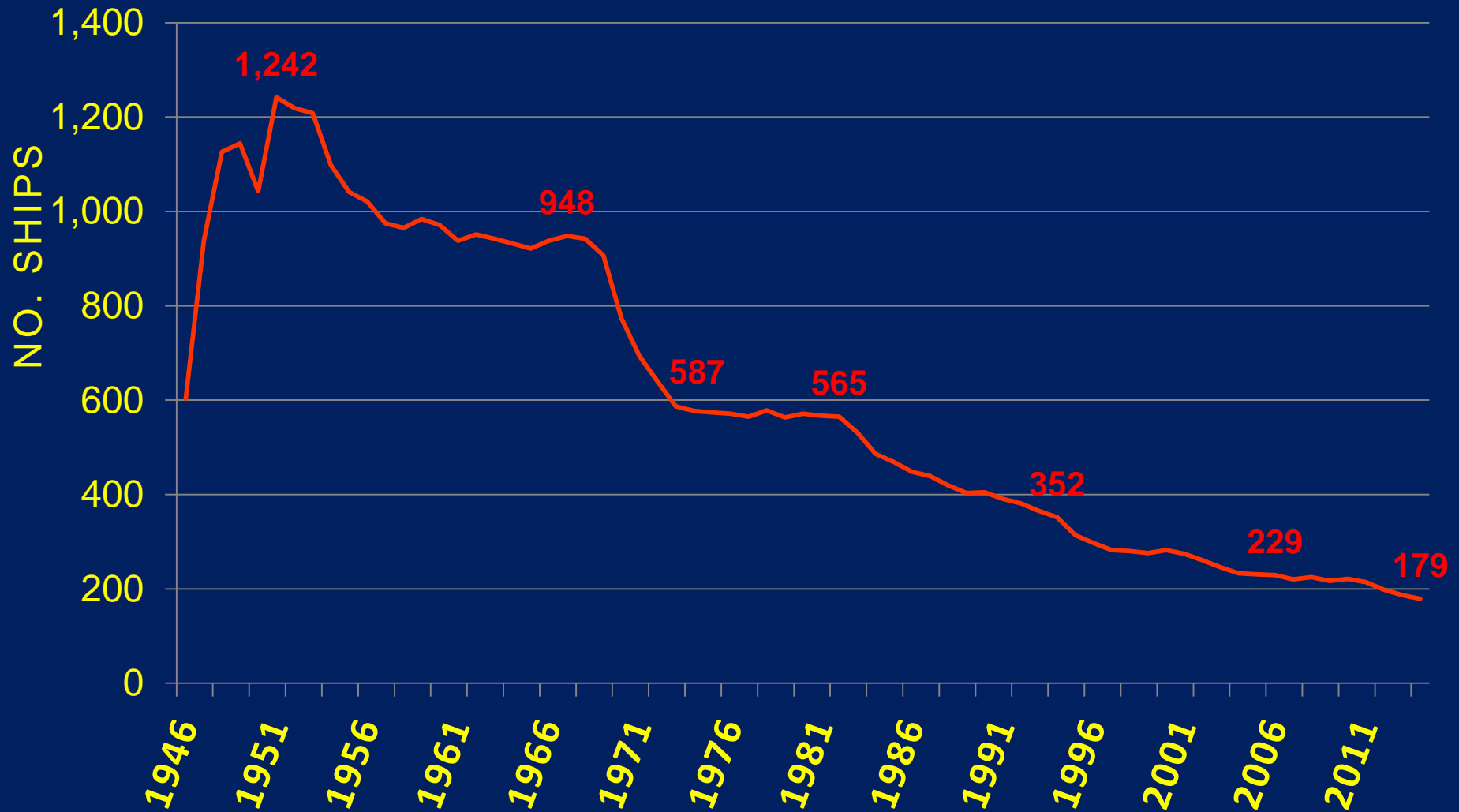


NATIONAL MARITIME STRATEGY





U.S.-FLAG PRIVATELY-OWNED FLEET* 1946-2014



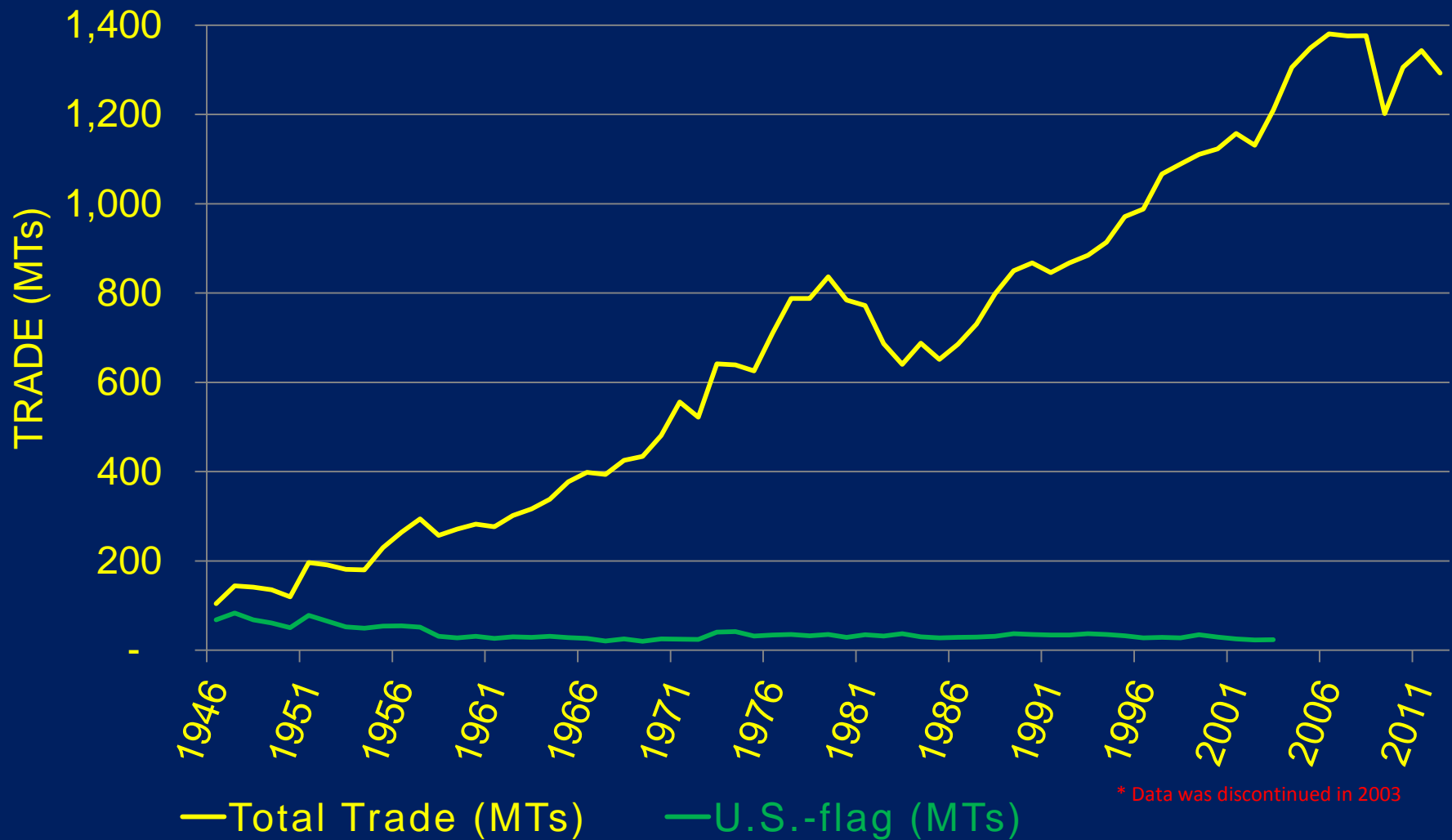
* Ocean-Going, Self-Propelled, Cargo Carrying Ships, over 1,000 GT.



U.S. WATERBORNE FOREIGN TRADE

1946-2012

U.S. FLAG SHARE 1946-2003*

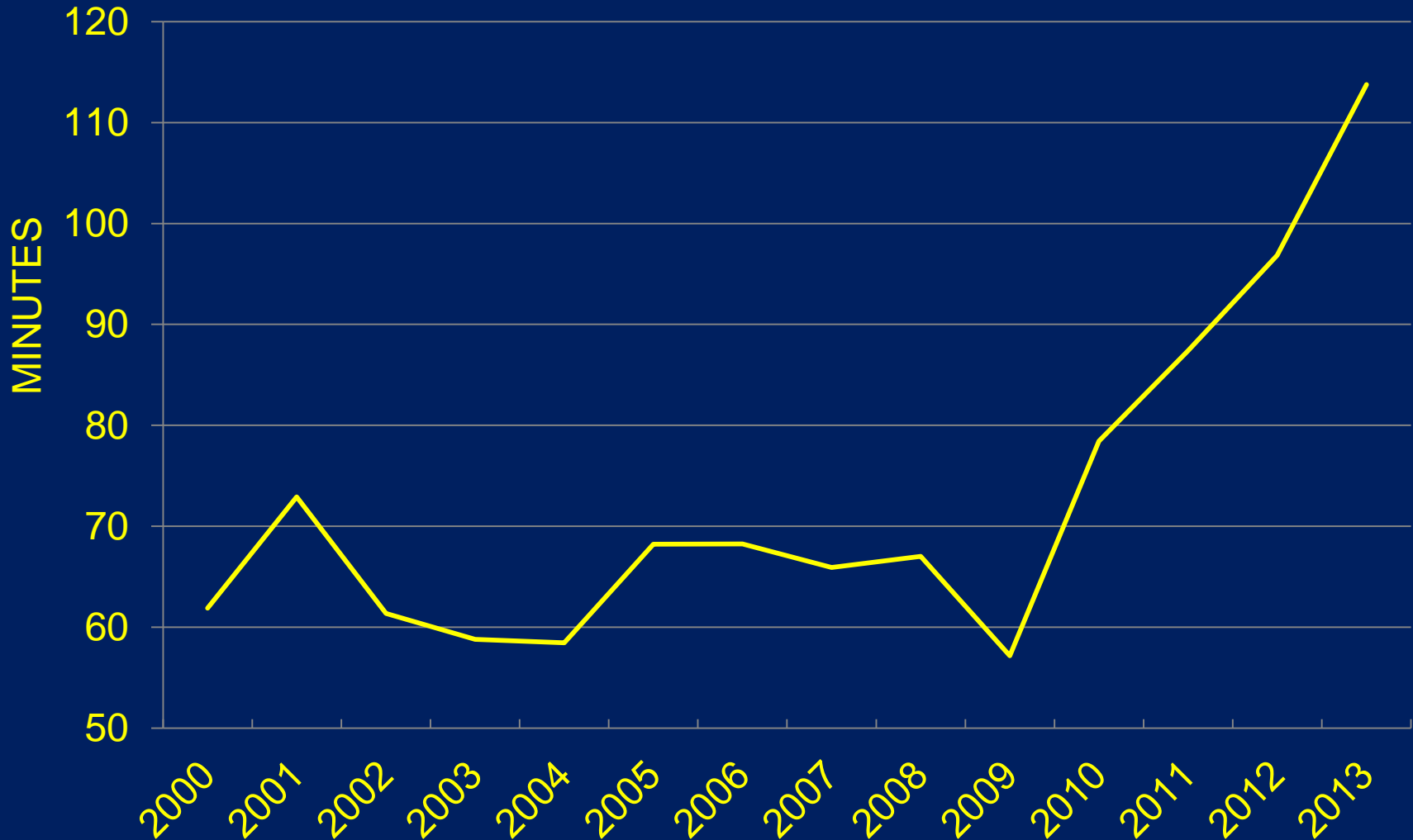




AVERAGE DELAY TIME OF ALL U.S. LOCKS FOR TUG/BARGE TOWS



2000-2013





Single most significant innovation that impacted the Maritime Industry in the last 50 years?



The Jones Act

The Merchant Marine Act of 1920 (P.L. 66-261)

8164

CONGRESSIONAL RECORD—SENATE.

JUNE 2,

1920.

ton merely asks that it lie on the table for the present, and it is in the province of the Senate to determine when it will proceed to the consideration of the conference report. There is no request whatever pending for the consideration of the report. So the Chair can not tell the Senator from New Jersey what action the Senate may hereafter take in regard to the report.

Mr. NELSON. I suppose the conference report can be taken up at the proper time either by unanimous consent or on motion.

The PRESIDING OFFICER. Certainly. Any Senator can make a request for unanimous consent to consider the report, and if that is not secured he may at the proper time move to consider the report. The Senator from New Jersey must appreciate the fact that the Chair can not anticipate what the Senate may do in the matter.

Mr. JONES of Washington. I submit the report, and ask that it lie on the table for the present.

The report is as follows:

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H. R. 10378) to provide for the promotion and maintenance of the American merchant marine, to repeal certain emergency legislation, and provide for the disposition, regulation, and use of property acquired thereunder, and for other purposes, having met, after full and free conference have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its amendments numbered 35, 44, 47, 49, 122, 125, and 149.

That the House recede from its disagreement to the amendments of the Senate numbered 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 43, 45, 46, 50, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 78, 80, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 140, 143, and 148, and agree to the same.

That the House recede from its disagreement to the amendment of the Senate numbered 3, and agree to the same with an amendment as follows: In lieu of the matter proposed by the Senate amendment insert the following: "in this act"; and the Senate agree to the same.

That the House recede from its disagreement to the amendment of the Senate numbered 15, and agree to the same with

"Each commissioner shall devote his time to the duties of his office, and shall not be in the employ of or hold any official relation to any common carrier or other person subject to this act, nor while holding such office acquire any stock or bonds thereof or become peculiarly interested in any such carrier.

"The duties of the board may be so divided that under its supervision the directorship of various activities may be assigned to one or more commissioners. Any commissioner may be removed by the President for inefficiency, neglect of duty, or malfeasance in office. A vacancy in the board shall not impair the right of the remaining members of the board to exercise all its powers. The board shall have an official seal, which shall be judicially noticed.

"The board may adopt rules and regulations in regard to its procedure and the conduct of its business. The board may employ within the limits of appropriations made therefor by Congress such attorneys as it finds necessary for proper legal service to the board in the conduct of its work, or for proper representation of the public interest in investigations made by it or proceedings pending before it whether at the board's own instance or upon complaint, or to appear for or represent the board in any case in court or other tribunal. The board shall have such other rights and perform such other duties not inconsistent with the merchant marine act, 1920, as are conferred by existing law upon the board in existence at the time this section as amended takes effect.

"The commissioners in office at the time this section as amended takes effect shall hold office until all the commissioners provided for in this section as amended are appointed and qualify."

"(b) The first sentence of section 4 of the 'Shipping act, 1916,' is amended to read as follows:

"Sec. 4. That each member of the board shall receive a salary of \$12,000 per annum."

And the Senate agree to the same.

That the House recede from its disagreement to the amendment of the Senate numbered 24, and agree to the same with an amendment as follows: In lieu of the matter proposed by the Senate amendment insert the following: "Provided, That all vessels assigned to river and harbor work or inland waterways, and vessels now in the course of construction or under contract by the War Department or the Navy Department, shall be exempt from the provisions of this act"; and the Senate agree to the same.

That the House recede from its disagreement to the amend-

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Panama Canal Expansion

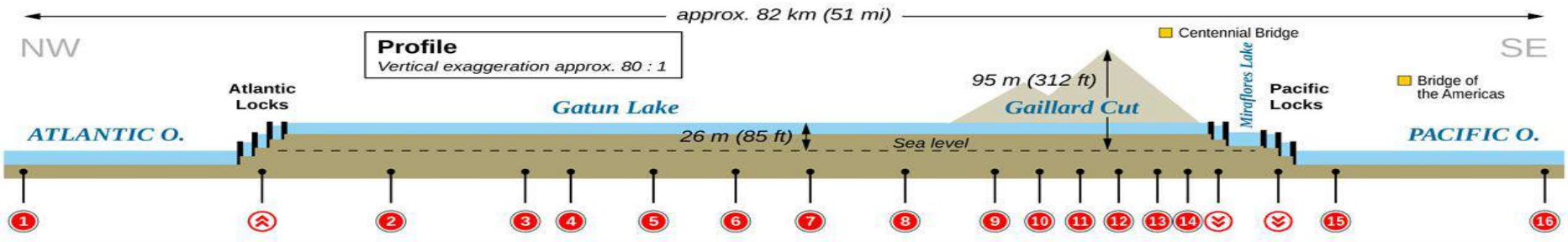
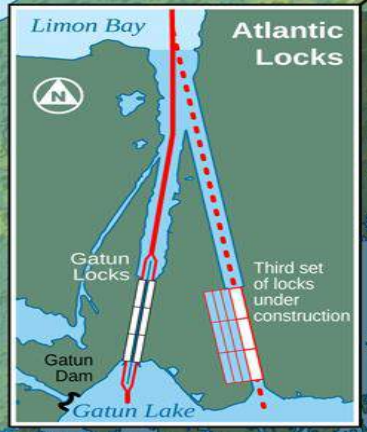
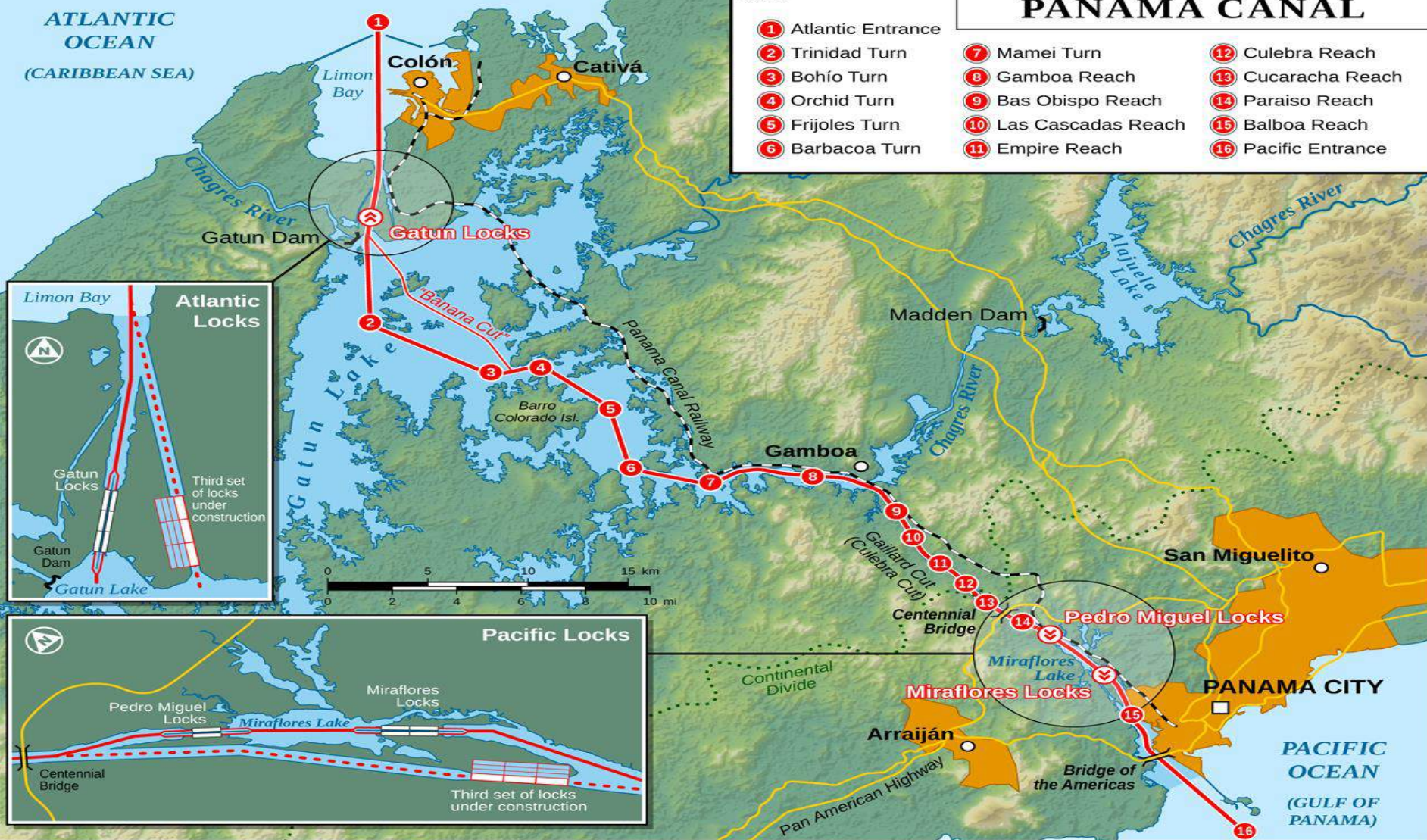


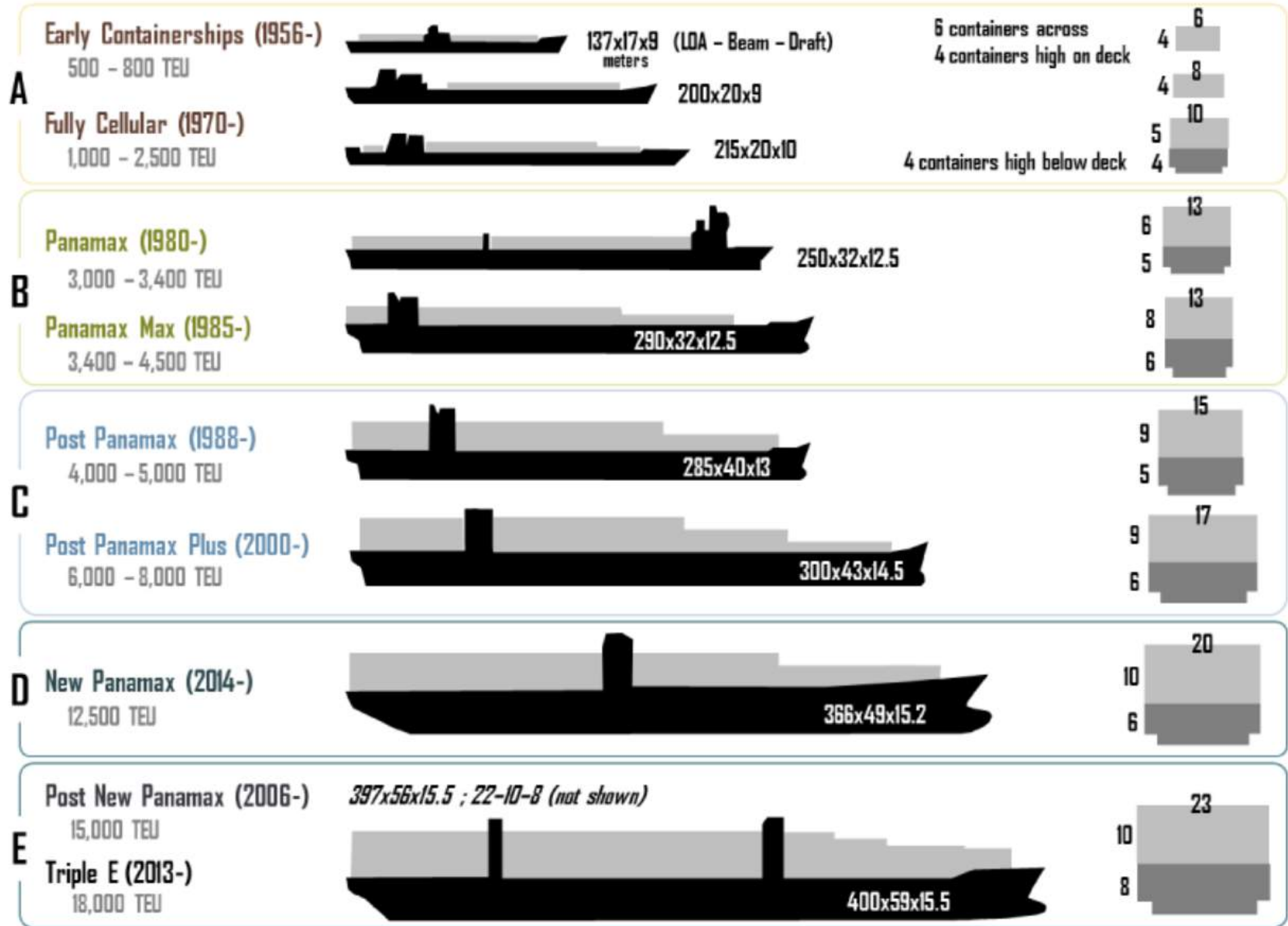
05/2012

PANAMA CANAL

ATLANTIC OCEAN
(CARIBBEAN SEA)

- | | | |
|---------------------|----------------------|--------------------|
| ① Atlantic Entrance | ⑦ Mamei Turn | ⑫ Culebra Reach |
| ② Trinidad Turn | ⑧ Gamboa Reach | ⑬ Cucaracha Reach |
| ③ Bohío Turn | ⑨ Bas Obispo Reach | ⑭ Paraiso Reach |
| ④ Orchid Turn | ⑩ Las Cascadas Reach | ⑮ Balboa Reach |
| ⑤ Frijoles Turn | ⑪ Empire Reach | ⑯ Pacific Entrance |
| ⑥ Barbacoa Turn | | |





Maersk Triple-E class



CSCL Globe



Port of Felixstowe In Suffolk, England

2010



2011



Ports of Los Angeles/Long Beach





Questions?



Questions?



Questions?



Questions?