Shifting International Trade Routes

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U.S. East and Gulf Coast Perspectives

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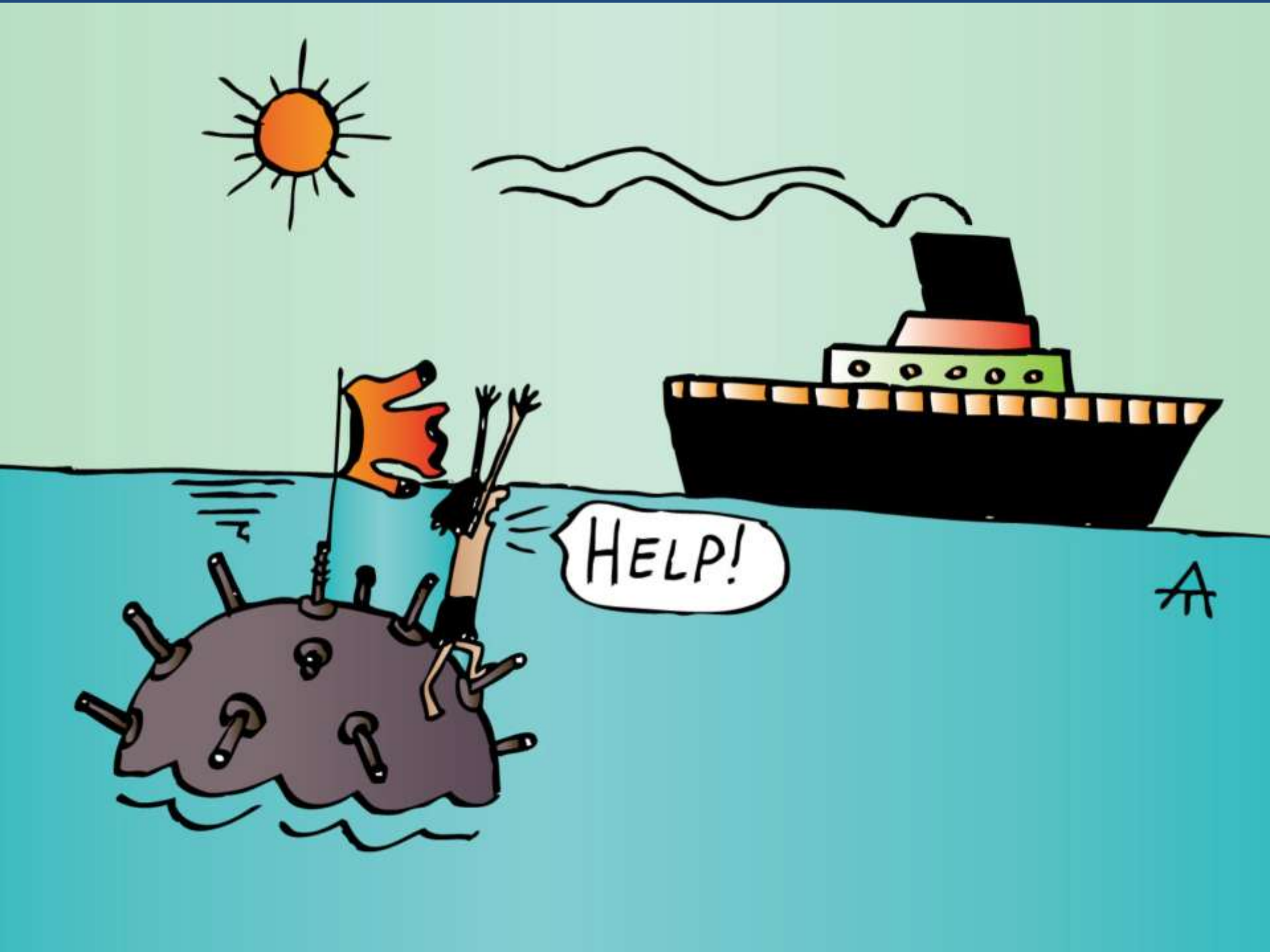

HELP!

Shifting Spotlight

2014 expansion will shift draft constraint spotlight from Panama (now 39-6 TFW) to USEC ports, particularly those in the southeast

Dredging plans for many US ports likely won't match the canal expansion completion date

Ports/terminals ready now are Hampton Roads, Global Terminals/NJ, Baltimore (1 berth) (Halifax too)

Likely Arrival Profile

Assuming a 2014 panamax version vessel sails Panama at max draft of 50', it'll arrive east coast ports at about 48.5', more or less. There will be fuel burn, further lightening the vessel, but that may be offset by ballast intake. 48.5' paints a challenging picture for most USEC ports

U.S. Ports Main Channel Depths

Depths at Mean Low Water (MLW)

U.S. East Coast	MLW
Boston	40’
New York / New Jersey	45’
Philadelphia	40’
Baltimore	50’
Norfolk	50’
Wilmington	38’
Charleston	45’
Savannah	42’
Jacksonville	40’
Tampa	43’
Miami	42’

U.S. East Coast	MLW
Everglades	44’
Manatee	40’
U.S. Gulf	
Houston	45’
New Orleans	45’
U.S. West Coast	
LA / Long Beach	50’
Oakland	50’
Portland	40’
Seattle / Tacoma	50’

Source: 2009 AAPA Directory

But we don’t see that happening – at least right away. Here’s why:

50’ max draft is a feature of an ULCS (13,000 teu and up), which would still be post panamax after the canal expansion. A more likely scenario is the 8,000-12,000 range vessel size, which typically has a max draft in the 47’- 48’ range

2. Max draft is typically calculated based on 14 tons/teu. e/b tp cargo weighs in much lighter – in the 9-10 tons/teu range. w/b backhaul cargo is a mix of heavy base cargoes (wastepaper, clay, reefer, etc.) and empties, resulting in a similar net weight/teu. As a result, large containerships typically sail in a full but not down condition.

Taking the likely scenario – a new panamax vessel sailing Panama at 46’ - 48’ (TFW) would arrive USEC ports in the 44.5’ - 46.5’ range. Again, it’ll probably be less given actual cargo weights. Sampling of current and planned East coast channel depths as follows:

Port/Draft	2011	Future	Comment
Miami	42	50	2014??
Everglades	44	50	???
Jacksonville	40	50	2018?? Funding Approvals
Savannah	42	48	2014/15/16?? Approvals Funding
Charleston	45	50	2014/15/16?? Approvals Funding
Norfolk	50	50	Ready to go
Baltimore	50	50	Only 1 container berth at 50’
NY / NJ	45	50	2014?? Air draft Bayonne Bridge?
Global NJ	50	50	Ready to go, expanding

Reality Sets In

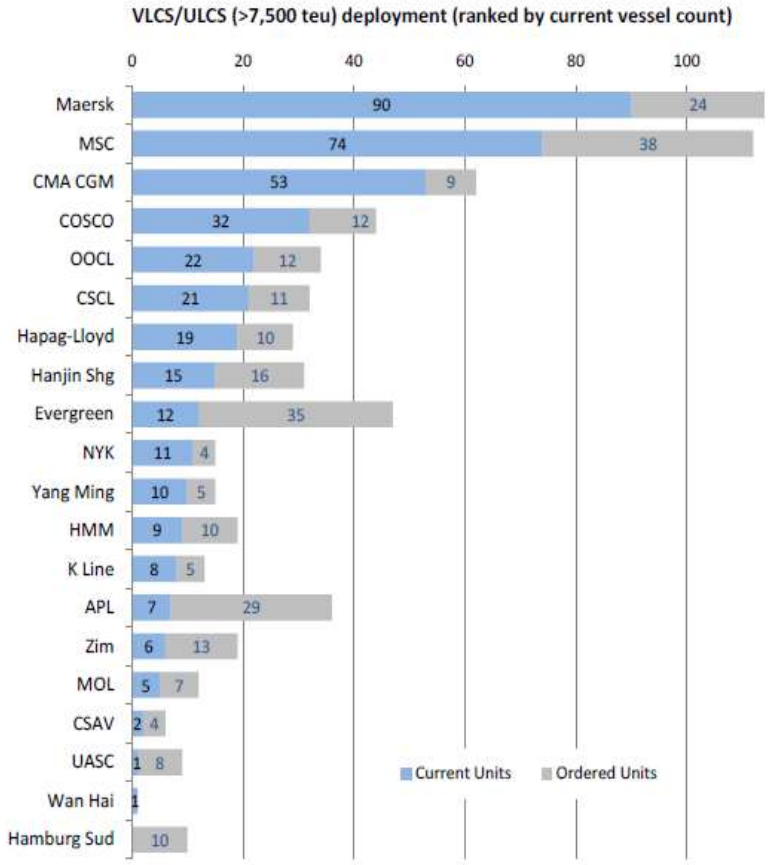
398 VLCS in Service

272 on Order

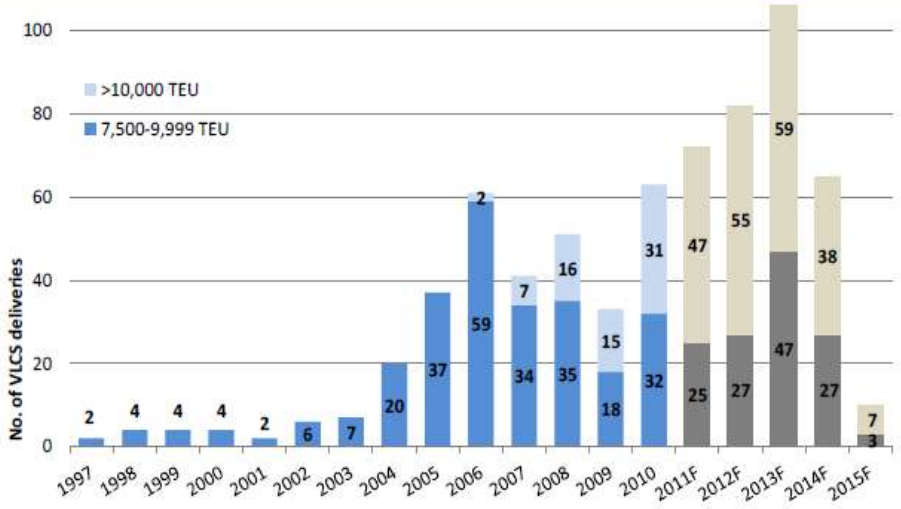
VLCS Watch — Vessels above 7,500 teu only

No. of VLCS (Current)	398
Total VLCS TEU (Current)	3,862,980 TEU
No. of VLCS (On order)	272
Total VLCS TEU (On order)	3,158,290 TEU

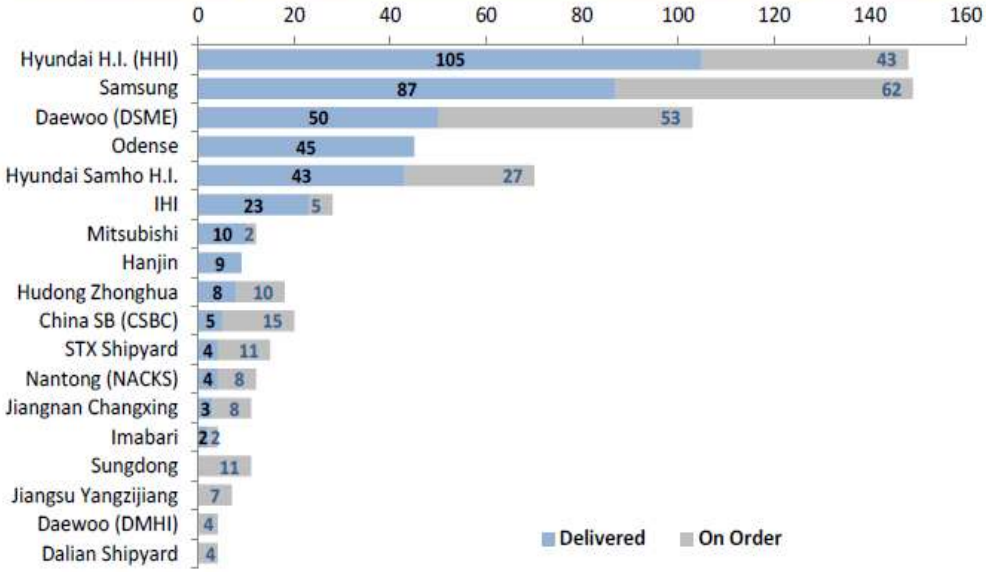
VLCS Deployment by Carrier



VLCS Fleet by Year of Delivery — Vessels above 7,500 teu only



VLCS Deliveries by Shipyard — Vessels above 7,500 teu only



Global Capacity Deployment Breakdown by Trade (as at 1 November 2011)

By Vessel Count

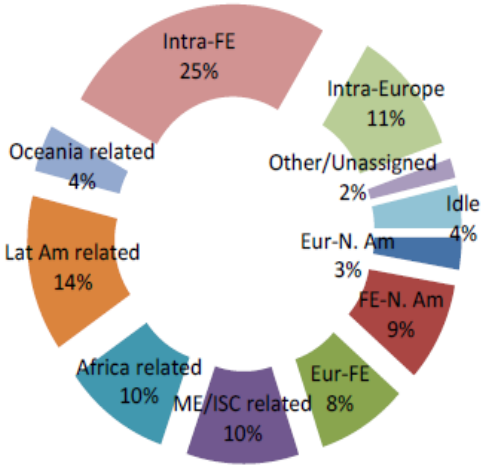
Trade \ Size Range	100-999	1,000-1,999	2,000-2,999	3,000-3,999	4,000-5,099	5,100-7,499	7,500-9,999	10,000-15,500	Total Cellular Units	Non-cellular	Total Liner Units	%
Eur-N. Am	0	9	38	27	63	11	0	0	148	5	153	3%
FE-N. Am	0	10	25	12	198	127	94	2	468	4	472	9%
Eur-FE	0	0	3	9	33	141	164	108	458	0	458	8%
ME/ISC related	50	129	87	89	100	67	13	0	535	32	567	10%
Africa related	36	185	200	43	23	18	4	0	509	33	542	10%
Lat Am related	80	158	137	63	159	87	11	0	695	50	745	14%
Oceania related	19	24	62	35	55	0	0	0	195	28	223	4%
Intra-FE	507	487	99	15	30	1	0	0	1,139	250	1,389	26%
Intra-Europe	253	203	36	10	13	0	0	0	515	82	597	11%
Other/Unassigned	37	21	7	1	4	2	2	0	74	19	93	2%
Idle	57	71	24	20	21	3	0	0	196	6	202	4%
Total	1,039	1,297	718	324	699	457	288	110	4,932	509	5,441	100%

By TEU Capacity

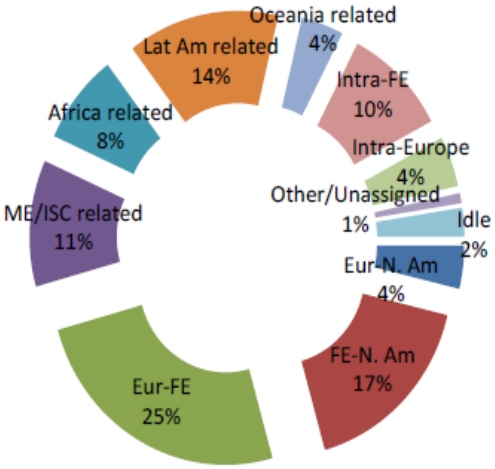
Trade \ Size Range	100-999	1,000-1,999	2,000-2,999	3,000-3,999	4,000-5,099	5,100-7,499	7,500-9,999	10,000-15,500	Total Cellular TEU	Non-cellular	Total Liner TEU	%
Eur-N. Am	0	12,494	101,199	90,673	294,306	67,912	0	0	566,584	14,540	581,124	4%
FE-N. Am	0	16,645	67,864	43,457	917,831	756,689	791,324	20,000	2,613,810	8,192	2,622,002	17%
Eur-FE	0	0	8,108	30,426	148,832	885,897	1,435,104	1,365,640	3,874,007	0	3,874,007	25%
ME/ISC related	31,514	179,567	221,578	311,345	441,848	405,435	108,951	0	1,700,238	14,859	1,715,097	11%
Africa related	27,250	283,393	491,227	140,516	103,844	118,876	32,477	0	1,197,583	29,296	1,226,879	8%
Lat Am related	56,572	229,573	339,830	212,655	698,055	529,437	92,796	0	2,158,918	19,674	2,178,592	14%
Oceania related	14,561	33,614	166,222	121,037	250,313	0	0	0	585,747	18,379	604,126	4%
Intra-FE	294,653	666,589	258,040	49,410	135,213	5,527	0	0	1,409,432	82,382	1,491,814	10%
Intra-Europe	182,559	283,294	91,675	33,991	57,025	0	0	0	648,544	34,298	682,842	4%
Other/Unassigned	23,049	31,421	18,565	3,005	16,627	12,809	16,688	0	122,164	10,573	132,737	1%
Idle	40,010	98,719	61,993	69,417	95,100	20,048	0	0	385,287	3,566	388,853	3%
Total	670,168	1,835,309	1,826,301	1,105,932	3,158,994	2,802,630	2,477,340	1,385,640	15,262,314	235,759	15,498,073	100%

The survey counts cellular and non-cellular containerships above 100 teu only. Roro and general cargo vessels employed on multipurpose liner services are excluded.

Global Trade Deployment By Vessel Count



Global Trade Deployment by TEU Capacity



So Where Will They Go?

West coast ports will likely maintain current transpacific market share and some will go there:

- Quicker transit for time sensitive cargoes
- Most major carriers have terminal investments on USWC, which they will endeavor to fully utilize
- Many of the terminals can digest the big ships
- Canal fee increases may partially offset cost differential between all-water and land bridge routing

- Current customers may realign in unforeseen ways -- what's certain today may not be tomorrow.
- Will recent Asia/Europe co-operations extend to North America?
- newly created/expanded feeder networks: (Santo Domingo, Freeport, Kingston expansions - Cuba?? Puerto Rico?? Halifax as hub via Suez???
- 8000's increasingly phased in on USEC strings

So What Does All This Really Mean for Stevedores/TO's??

Unlike carriers, who's assets are mobile, terminal operators and Ports are committed to a location, which is a conspicuous risk element

Short to medium term planning increasingly difficult:

- Carriers unwilling/unable to commit long term – they don't know what's going to happen
- Uncertainty in liner market due to over tonnage
- Financial situation of current client base – who will survive?

But Somebody Will Show Up – so what are the operating challenges?

- ❑ Vessel planning/stowage
- ❑ Cranes/Productivity
- ❑ Pad Congestion
- ❑ Dock Congestion
- ❑ Gate Congestion
- ❑ Grooming of Export Pads
- ❑ Dwell time/segregation of imports
- ❑ Additional Gangs and Equipment
- ❑ Labor Issues/Opposition to Automation
- ❑ Additional Tugs and Pilots in some cases

Conclusions Near Term

- Lines contemplating various different deployments, service options and evaluations underway
- 8000 plus vessels already in play (MSC, CMA)
- Transition to increased use of larger vessels likely gradual, phased in over time
- Vessel planning/operations will be a key to optimizing selection of initial port rotations

Many Thanks

- Savannah has serviced 8,500 TEU CMA-CGM vessels, but all have been tide restricted (as have all vessels drawing over 38 feet of water).
- As for the operational aspects in most cases, productivity should see only marginal gains. Production gains from more containers handled in specific bays will be offset by the additional gangs employed to handle the volume, hoisting over ROB containers and yard congestion.
- A higher utilization of stevedoring equipment (UTR's, Bombcarts and Forklifts) will be required.
- Dwell time/segregation on import containers will have to be addressed, as congestion with "over the road" trucks picking-up containers (while the vessel works) may hinder ongoing vessel terminal operations.

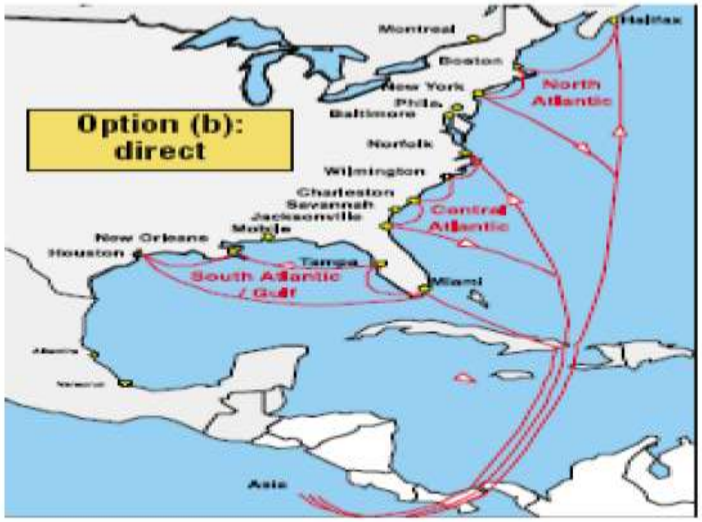
- Ceres currently handles 9100 teu vessels for MSC on the Golden Gate Service.
- Volume has been running in the 1000 move range with production of 35 – 40 gross moves per hour. Vessels have been running on schedule which helps limit the number of gangs working to 3. This cuts down on congestion, limits digging and increases production.
- In mid-February, MSC will start doing double calls with this service at APM.
- Excellent production on the discharge portion is expected and poorer production on the load out.
- This schedule will allow MSC to maximize load out due to Hampton Roads channel depths and hopefully decrease air and water draft issues in the other ports.

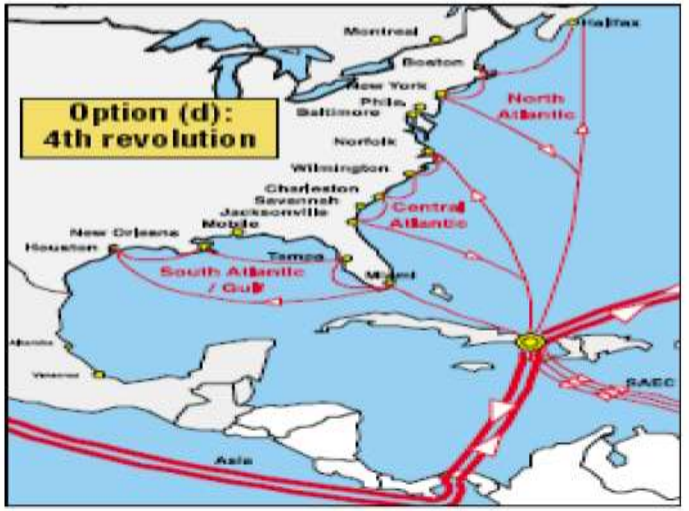
Port[1]	Main Channel Depth	Entrance Channel (Approach) Depth
Long Beach	55’	76’
LA Harbor	53’	81’
Norfolk	50’	55’
Oakland	50’	55’
NY/NJ	50’	53’
Seattle	50’	N/A
Port Everglades, FL	49’	54’
San Juan, PR	46’	66’
Port Freeport, TX	45’	47’
Houston	45’	45’
Mobile Bay	45’	47’
Charleston	45’	47’
Honolulu	45’	50’
Tampa	43’	45’
Portland, OR	43’	48’
Miami[2]	42’	44’
Wilmington	42’	44’
Savannah[3]	42’	42’
Boston[4]	40’	47’
Jacksonville, FL[5]	40’	42’

[1] There is also a proposal for an offshore container terminal at the mouth of the Mississippi that could handle maximum drafts and then move containers upriver by barge.
[2] GRR recommended -50 feet
[3] GRR studying 44-48 feet
[4] Feasibility Study investigating -45 feet
[5] GRR studying -45 feet

Source: Containerization International

Possible Service Patterns of the All-Water Panama Links





Option (a): Traditional = A single service that covers the entire Atlantic region

Option (b): Regional Specialization = Three separate services, each focusing on a different USEC region

Option (c): Hub and Spoke = the same, but based on three short regional feeder loops.

Option (d): Global Grid= based on the fourth revolution with counter-rotating ERTW services, handling both the Asian and Mediterranean trades.