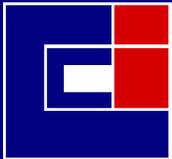


# JAXPORT AS AN URBAN GROWTH STRATEGY: COMMUNITY IMPLICATIONS AND PROSPECTS



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This report is a product of The Ports Project (<http://www.unf.edu/coas/cci/ports/>) at the University of North Florida. It is based on research conducted by faculty and students that includes meetings with community stakeholders and researchers. The purpose of this report is to provide the community with an analysis and assessment of some of the social, economic, and environmental implications of an expanding Jacksonville Port Authority (JAXPORT) enterprise. The report critically examines an economic urban growth strategy that revolves around port logistics, goods movement, and transportation.

## INTRODUCTION

Public officials and segments of the business community have closely linked the economic future of Jacksonville to the expansion of JAXPORT and the addition of two new shipping container terminals at Dames Point (Mitsui/Tra-Pac and Hanjin). Jacksonville is now marketing itself as “America’s Logistics Center”. JAXPORT, and the associated logistics industry, has been identified as one of the most significant sources of economic growth for Jacksonville and the Northeast Florida region. The growth of this sector, therefore, represents a potential economic opportunity for the community and region.

In spite of the attention directed to the port as a potential engine of economic expansion for Jacksonville, most residents have little knowledge of what is involved in a local economy revolving around a container shipping port, the logistics industries, and the movement of goods. Most if not all of the information the public receives about the port is produced and disseminated by JAXPORT itself, local businesses, the chamber of commerce, and stakeholders that may benefit directly from the expansion of the port, or public officials who view the port as a growth engine for Jacksonville and the North Florida region. What is absent is an independent critical analysis of the port economy.

One of the purposes of The Ports Project at UNF and this report is to begin to fill in this gap in information and analysis. A larger objective is to raise community awareness about the proposed port economy development strategy so that an informed citizenry can participate more effectively in decisions about the future economic direction of their community. Democratic citizenship and community engagement in public affairs requires information and knowledge. Public knowledge and awareness are also important because large sums of public taxpayer funds are being requested to support and expand the port infrastructure. If the proposed projects move forward as proponents hope, there are additional costs to be considered along with the widely touted benefits.

The first section of the report will provide some basic descriptive information about the Jacksonville Port Authority -- its terminals, and the types of cargo that move through

the port. This is followed by a brief discussion of the role of JAXPORT within the larger global system of cargo transit. The third section of the report outlines the major infrastructural projects that are designed to enhance the competitiveness of JAXPORT. This includes the St. Johns River dredging/deepening project. The fourth and fifth sections of the report turn to an assessment of costs and benefits as they relate to employment and the environment. One of the leading arguments for port expansion is that it will create jobs. This study looks closely and critically at the job numbers that have been used to make the case for investment in port expansion. All shipping ports also pose a range of environmental threats to air and water quality which need to be considered as well. This includes, for the case of JAXPORT, the environmental impact of deepening the St. Johns River. The final section places Jacksonville in the larger context of East coast ports competing with each other for container vessels and cargo. The report concludes with some constructive policy recommendations based on the research literature as well as best practices from ports across the nation and globe.

## **JAXPORT: BASIC INFORMATION**

The Jacksonville Port Authority (JAXPORT) is a government entity that operates as a private corporation. Local tax revenue is used for its operating expenses. As a “landlord port” JAXPORT leases its land, terminals, and equipment to private maritime firms and this source of revenue supports expansion and maintenance of physical facilities and infrastructure.

JAXPORT, as an organization, employs only about 150 people. When reference is made to JAXPORT as a job creating entity this refers to the labor forces employed by the firms that move cargo, lease space at the terminals, supply goods and services to the firms moving cargo, as well as the multiplier effects of JAXPORT income generating activity.

JAXPORT owns three major cargo terminals – Tallyrand, Blount Island, and Dames Point. These terminals handle six types of cargo: containers (filled with finished and semi-finished goods), break bulk (e.g. pallets), liquid bulk (e.g. cooking oil), dry bulk (e.g. gravel), wheeled vehicles (aka roll-on/roll-off or “ro-ro”), and project cargo (e.g. heavy machinery). A breakdown of the cargo types for the years 2007 and 2011, as reported by JAXPORT, is below.<sup>1</sup>

Port Statistics	FY 2007	FY 2011
Vessel Calls	1,800	2,030
Tonnage		
Containerized	3,638,715	4,865,071
% of Total	44%	60%
Breakbulk	1,161,775	894,366
% of Total	14%	11%
Bulk	2,252,900	1,221,547
% of Total	27%	15%
Automobiles	1,255,811	1,147,029
% of Total	15%	14%
Total	8,309,201	8,128,013
Units		
Containers (TEUs)	710,073	900,433
Automobiles	614,647	520,142

The changing cargo profile, with containers accounting for the greatest percentage of tonnage as well as registering the largest percent increase (33.7%) over the four year period, reflects the growing importance of the container terminals. This is the area where the greatest expansion is anticipated with the completion of the Mitsui/Tra-Pac terminal at Dames Point and the projected addition of a Hanjin container terminal in the same location.

As a landlord port (that leases rather than owns and controls port facilities) JAXPORT is limited in its ability to propose and implement policies and procedures unless these are included in formal lease agreements. In this report we make policy recommendations with the understanding that JAXPORT's landlord status places constraints on its ability to unilaterally change or modify practices and procedures of port-related businesses. However, in concert and collaboration with port tenants and stakeholders, JAXPORT can take a leadership role in introducing new ideas and innovations that could translate into the most beneficial community impact.

## THE BIG PICTURE: THINK GLOBALLY

It is important to situate the local port economy in the context of the larger global intermodal supply chain. JAXPORT is just one node among many in this larger global system of production, transportation, distribution, and consumption that characterizes

the contemporary globalized economy. The primary objective of this system is to move goods from the point of production to the point of consumption as quickly and cheaply as possible. These supply chains are often driven by large retailers (e.g. Wal-Mart, Target, Home Depot, The Gap) who subcontract with manufacturers in less developed countries (China being the leading source). The movement of commodities to retailers and consumers is accomplished using interacting modes of transportation (“intermodalism”) involving truck, container ship, rail, and air. If the major players in this system can locate nodes that allow for the cheaper or swifter movement of goods to their final destination, they will choose these locations as entry points into national consumer markets. It is within this system that Jacksonville and JAXPORT hope to gain a foothold and become a major national port and logistics center.

It should be clear that Jacksonville is not being chosen as a potential location for expanded containerized goods movement because of a manufacturing presence that would justify a larger port for the purpose of exporting manufactured goods (or importing raw materials, components for assembly) nor because Jacksonville represents a large consumer market that would be the final destination for imported goods. Rather, the attractiveness and competitiveness of the port is based on the potentially low cost of unloading and moving goods from container vessels to other national wholesale and retail markets by way of truck and rail. In this sense, Jacksonville is a node within a larger network rather than a production or consumption center for goods. Jacksonville’s geographic proximity to I-95 and I-10 arteries, and extensive rail service, are key assets in this regard.

The containerized goods that would move through the two new terminals associated with the Mitsui and Hanjin shipping lines have no necessary relationship to Jacksonville as a city or community; nor have the shipping lines made any effort to develop a cultural presence in the community. Rather, what will pass through these terminals is what is labeled “discretionary cargo”. This is cargo that shippers and carriers can decide to move through almost any United States port knowing that the intermodal transportation system will be able to deliver it to its final destination. This fact contributes to the increasingly competitive environment among ports for what is currently a depressed volume of cargo. In a nation that has seen its goods-producing sector shrink dramatically over the past three decades, cities, states, regions, and ports are now left to fight over the economic privilege of moving and distributing goods that are primarily manufactured elsewhere.

As measured by container traffic in twenty-foot equivalent units (TEUs), Jacksonville is currently the 18th largest port in the nation and the 6th largest port on the East coast. Presently, there is intense competition among East coast ports fueled by the anticipated increase in the volume of cargo that will result from the expansion of the Panama Canal.

This will allow the largest container vessels crossing the Pacific Ocean from Asia to reach the East coast. These “post-Panamax” container ships are currently too wide to travel through the canal. Therefore, the standard route for much of the Asian cargo entering the US has been through West coast ports – namely Los Angeles and Long Beach – with containers then placed on rail cars and moved throughout the country and to the East coast. This is known as the “land bridge” method. When the Panama Canal expansion is completed, the largest ships can take what is referred to as the “all-water” route through the canal and up to East coast ports and markets. Jaxport, with the new container terminals, is one potentially viable gateway for this cargo.

The original plan to expand the JAXPORT container terminal facilities can be traced back to a study done in 2005. The study was commissioned by JAXPORT and conducted by Martin Associates which is the leading port consulting firm in the United States. Martin Associates conducts most of the economic impact studies for individual ports as well as the port industry. At the time of the study, the global economy was growing at a torrid pace, US consumer demand for imports from Asia was surging, West coast ports were suffering from container congestion, and it was assumed that this state of affairs would continue indefinitely. Thus, the following recommendation by Martin Associates:

Clearly the most robust growth market with respect to containerized cargo is the Far East...With more shippers looking for diversification from the West Coast ports, other North and South Atlantic ports stand to benefit from the growth. JAXPORT appears to be a potential candidate due to the fact that it possesses the key factors that are attractive to Far East Carriers... It is recommended that the Port maintain its landlord status and focus on a shared investment with a tenant in the development of Dames Point. A long term lease with a carrier or terminal operator would then provide JAXPORT with the critical service to further develop distribution center activity in the Jacksonville region, further stimulating additional Asian carrier service, but also providing jobs to the local and regional economy.<sup>2</sup>

For a second or third tier port, best known for North-South trade and automobile roll-on/roll-off cargo, JAXPORT saw a clear opportunity for upward mobility in the national maritime port hierarchy. The Executive Director of JAXPORT at the time, Rick Ferrin, deserves credit for executing the recommended strategy and securing leasing agreements with two of the largest Asian shipping lines, Mitsui and Hanjin.

At present, the most visible result of implementing this recommendation is the completed 158-acre TraPac container terminal (at a cost of \$230 million) leased by Mitsui MOL at the newly developed Dames Point location. A second 90-acre Hanjin container terminal (original expected cost of \$300 million) is also slated for construction at Dames Point.

But the current economic crisis – a crisis based first and foremost on insufficient consumer demand for the goods that at one time were pouring through West coast ports – has radically changed the port logistics landscape. It has exacted an enormous impact on both terminals. While the TraPac terminal is capable of moving 800,000 TEU containers annually, it is currently operating at approximately 18% of capacity. Similarly, the Hanjin terminal, since the original plan was announced, has been scaled down in size and cost and its construction has been delayed from a 2011 to 2016 opening. The delay in construction has resulted from numerous issues. Most significantly, in addition to the current economic crisis, Hanjin does not want to proceed with terminal construction until the several coastal engineering projects – including the deepening of the St. Johns River channel – are financially supported and approved.

## **RE-ENGINEERING NATURE FOR THE PURPOSE OF COMMERCE**

Currently, the most pressing issue facing JAXPORT and determining its prospects for major league port status is the depth and navigability of the St. Johns River channel. First, the St. Johns River channel is currently only at a depth of 40 feet (according to the Army Corp of Engineers) and thus not at the desired 50 foot depth required for the largest fully-loaded post-Panamax vessels to access the terminals. Second, the problem of tidal currents at the point where the St Johns River intersects the Intracoastal Waterway – known as Mile Point – which prevents 24-hour port access, has yet to be resolved. The first issue will require a massive dredging project; the second a substantial coastal engineering task.

Optimally, and logically, these two elements of the marine infrastructure would have been in place prior to establishing lease agreements with the major shipping lines. In fact, one might imagine that the shipping lines would be hesitant to enter into any agreement until such conditions were assured or met. However, it would have been difficult, if not impossible, for JAXPORT to lobby for these massive public investments in coastal infrastructure in the absence of a real economic need for such significant modifications to the river. Approval by the Army Corp of Engineers for such projects is contingent on the measurable potential economic benefits in relationship to costs. It is unclear whether this was part of a strategic plan, but the building of the container terminals chronologically preceded the necessary modifications to the St. Johns River channel. Currently, this will likely strengthen the argument for the dredging and engineering projects, claiming that the existing terminals cannot function fully without them, and that the economic benefits from the projects will be that much greater.

### ***St. Johns River Deepening***

With one new container terminal finished (Tra-Pac) and another slated for future construction (Hanjin), getting the deepening project reviewed, approved, and completed has taken on greater urgency. This is further reinforced by the most recent report by Martin Associates of the relative prospects of Florida's ports:

The deepening of the St. Johns River to a draft adequate to accommodate a first in-bound port call at the JAXPORT marine cargo terminals is necessary in order to maximize the ability of the Port to serve as a Southeastern US distribution hub, and attract cargo activity and distribution center activity that would otherwise move via Savannah. Without deepening the St, John River... the significant capital investment made by an Asian carry/terminal operator along with JAXPORT's investment will not result in the economic development impact as planned.<sup>3</sup>

JAXPORT obviously has a vested interest in seeing that the St. Johns deepening project is given the highest priority, moves along expeditiously, and receives the requisite Federal financial support.

Additional support for this effort comes from a coalition that includes the Jacksonville Chamber of Commerce and local business leaders who recently organized a campaign to lobby the Army Corp and congressional representatives to fund and shorten the timeline for project approval and completion. The stated mission of the "Bring the Noise" campaign -- that claims to have generated 14,000 letters from community residents to public officials in support of the harbor deepening project -- is "to mobilize North Florida's competitive spirit to drive port progress, a stronger economy, and a better quality of life because everyone has a stake in the port's growth and together we are more than the sum of our parts".<sup>4</sup> The "title sponsor" of the campaign is England-Thims & Miller Inc. a Jacksonville-based firm specializing in the management of large-scale infrastructure projects. Other sponsors include CSX, a rail and intermodal transportation company; the Northeast Florida Association of Realtors; RS&H, a facilities and infrastructure consulting firm; Degrove Surveyors, Inc., a land and hydrographic surveying consultant; HDR, an architecture, engineering, consulting, construction and related services company; and Taylor Engineering, a coastal engineering firm.

If approved and completed, the channel deepening project will come at a huge public expense. The estimated costs have continued to grow. Initial estimates in 2007 and 2008 placed the cost at around \$400 to \$500 million. In 2009, the "rough estimate" had been increased to \$600 million.<sup>5</sup> In January 2010 the figure was placed at \$1 billion.<sup>6</sup> The majority of the funding will come from Federal tax dollars.

The lengthy process involved in getting the approval of the Army Corp, and then actually completing the dredging/deepening project, has become a major issue for the port and its customers. The Army Corp indicated in January of 2010 that the soonest post-Panamax vessels would be able to access the port is 2016. At the time, a JAXPORT spokesperson indicated that: "2016 isn't acceptable and we have to get closer to 2014." The same report noted that "If Jacksonville is late to have deep water

access, the larger ships would go to other ports instead.” John Martin, head of the leading maritime port consulting firm Martin Associates, added that, “It isn’t clear how much of the fleet will be requiring 50 feet, but if you don’t have 50 feet you can’t market to carriers to bring in the big ships.”<sup>7</sup>

The recent experience of Savannah is instructive as it is further along than JAXPORT in the effort to dredge and deepen its channel to accommodate the large container vessels. Like Jacksonville, Savannah has a channel that is too shallow at 42 feet and thus is working through the process with the Army Corp of Engineers to have the Savannah River dredged to 50 feet. It is worth noting that this relatively shallow depth has not prevented Savannah from being the fastest growing port in the U.S. over the past decade and far surpassing Jaxport in total container throughput. This suggests that channel depth is not the only consideration when shippers and carriers make decisions about where to move their cargo, though some believe this factor will increase in importance.

The Corp has recently given preliminary approval for the Savannah project, but only up to 47 feet based on their cost-benefit calculations. In addition, as part of the review process, the Corp has conducted one of the only economic impact studies of the Savannah port. One of its conclusions is quite striking: “no additional cargo volume through Savannah Harbor as a result of the proposed harbor deepening”.<sup>8</sup>

The only additional Savannah employment estimated by the Corp are temporary jobs related to project construction. They do not estimate permanent jobs. But if the deepening does not increase the quantity of cargo, it is unclear how the project will increase the number of port-related jobs to any significant degree. Therefore, with a cost to taxpayers of \$650 million, this dredging project would not appear to generate a sufficient labor market return on investment.

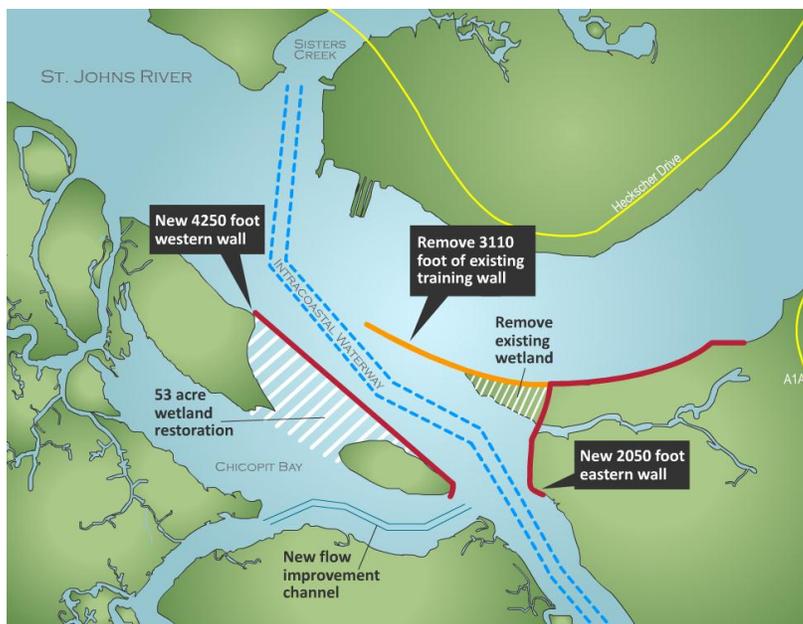
Instead, according to the report, the primary benefits will accrue to shipping companies, retailers, and foreign manufacturers who will save \$174 million in transportation costs annually.<sup>9</sup> This is due to the ability of larger ships to move the cargo with fewer trips. Thus, the primary beneficiaries of this project are non-local businesses. The secondary impact of this cost savings is lower costs to consumers nationwide assuming the cost savings are passed on in lower prices.

As it pertains to the proposed St. Johns River dredging/deepening project, and the associated economic and environmental costs, it would be good for the community to know in advance what the impact of the project will be in terms of increasing the quantity of cargo. If it is similar to the result reported for Savannah – and if the benefits will accrue largely to carriers, shippers, and retailers headquartered far from Jacksonville – this should be considered in evaluating the net benefit of the project.

## ***Mile Point Project***

There is a second coastal infrastructure project that is equally critical for the future of Jaxport. This is the Mile Point conundrum. The confluence of the St Johns River with the Intracoastal Waterway generates powerful crosscurrents on the ebb tide that prevents navigation for large container vessels. Thus, these ships only have two four-hour windows (every 24 hours) to get in and out of the St. Johns channel. This effectively closes access to the terminals two-thirds of the day. The Army Corp of Engineers recently approved the Mile Point project to correct the problem and it is currently awaiting congressional action. The estimated cost for this project is \$38 million and it could be completed in 2014. This coastal engineering project will involve significant alterations to river islands and wetlands, adversely impacting adjacent salt marsh and requiring 53 acres of mitigation on Great Marsh Island (see below).<sup>10</sup>

Completion of the Mile Point project appears to be an absolutely necessary condition for the operational viability of a functioning port. Assuming no unanticipated consequences to the hydrology of the river and the surrounding environment, long-term benefits would seem to exceed costs. It is surprising that such a problem has persisted for so long given the limitation of around the clock access to port terminal operations.



While both the deepening and Mile Point projects are framed as alterations to “natural conditions”, they are simply the latest phase in the seemingly endless reconfiguration of the physical environment to satisfy the imperatives of commerce. As it pertains to the

St. Johns River, there is a long history of redirecting the flow and shape of the river for business interests and economic development. What one sees today has little resemblance to the river's original state before significant human settlement. At one time sections of the St Johns River were so shallow that cattle were able to walk from one bank to the other. Hence the early name of the Jacksonville settlement as Cowford. The first dredging and deepening operation was conducted in 1892 bringing the depth to 15 feet. In 1902 the river channel was deepened further to 24 feet and its width expanded to 300 feet from Jacksonville to the mouth at the Atlantic Ocean. In 1924 the channel was deepened again to 30 feet. In 1945 the river was redirected at Dames Point creating the Fulton Cut and forming Blount Island. Three additional dredging projects from 1965 to the present have established the current depth at 40-42 feet.<sup>11</sup>

### ***Intermodal Container Transfer Facility***

A final infrastructural project, that has received far less attention than the deepening and Mile Point, is the onshore Intermodal Container Transfer Facility. This facility, at an estimated cost of \$45 million, is designed to move containers by rail more quickly, efficiently, and cleanly from the Dames Point terminals to points where rail and truck can transport the containers to their final destinations. The advantage of the ICTF is the use of rail rather than drayage trucking. The expeditious movement of cargo from the terminal to intermediate and final destinations is a significant factor in evaluating the competitiveness of ports. It is also an environmentally sound strategy reducing truck generated diesel emissions, taking trucks off the road and thus relieving traffic congestion.

JAXPORT applied for a \$25 million federal Department of Transportation TIGER grant to support the cost of the project. They received \$10 million. The remaining cost (\$35 million) will have to be met through state funds, private investment, and other efforts by Jaxport.

Martin Associates has also affirmed the importance of the ICTF:

*The location of an ICTF appears to be critical in the establishment of a logistics center (LC). Based on the review of the past successes of LCs, a critical ingredient is the proximity to a major rail Intermodal Container Transfer Facility (ICTF). This suggests that the development of an LC in Florida should consider the proximity to an existing or planned ICTF.*<sup>12</sup>

In an effort to speed up and expedite national transportation and infrastructure projects, including the JAXPORT related projects outlined above, the U.S. government, through the Obama administration's "We Can't Wait" initiative, recently designated the Army

Corp's Jacksonville Harbor Navigational Deepening Study and the ICTF project for accelerated review.

## ECONOMIC IMPACT OF JAXPORT: JOBS AND EMPLOYMENT

In a period of economic crisis and high unemployment, the promise of job-generating projects and economic development strategies can prove highly appealing. As the United States has experienced a steady decline in the proportion of employment and economic activity in goods-producing manufacturing there has been a corresponding increase in the proportion of employment and economic activity in the service sector and goods-moving logistics industry. One national-level question has been whether the industries experiencing employment expansion provide the same quantity of jobs, and quality of compensation and economic security, as those that have been lost or that are slowly disappearing.

The single most common argument made in favor of JAXPORT expansion and infrastructural investment is job growth. That is, a significant benefit of the JAXPORT expansion – both the infrastructure projects and the continuing operation of the port – could be the generation of new, and the expansion of existing, job opportunities for residents of the region and beyond. This fact alone often trumps any other considerations or objections related to excessive infrastructural costs or environmental consequences.

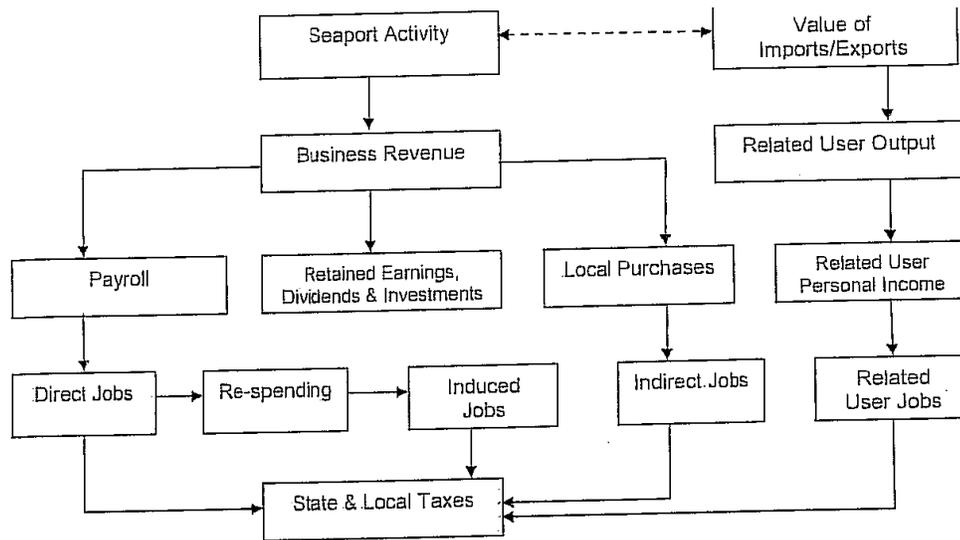
Most of the information about jobs projections and economic impact comes from JAXPORT. In assessing the claims, and weighing the larger costs and benefits to the community, it is important to consider both the *quantity* and the *quality* of employment opportunities. JAXPORT has persistently communicated, through its promotional materials, that “JAXPORT Equals Jobs”. More specifically, JAXPORT consistently asserts that Jacksonville’s port **“generates 65,000 jobs” and “these positions provide an average salary of \$43,980, well above the Jacksonville average of \$27,215”**.<sup>13</sup>

These are lofty claims and, if accurate, they would make a strong case for the pursuit of an urban development strategy that revolves around port logistics. The importance of getting the facts straight is quite critical because these figures are routinely used by JAXPORT proponents, local boosters, city officials, and even the mayor of Jacksonville to make a case, and garner support from lawmakers and the public, for the investment of up to a billion dollars of federal and local funds to deepen and reengineer the St Johns River channel.

Where do these job and income figures come from? JAXPORT did not invent them. They are taken from a 2009 economic impact study conducted by Martin Associates.<sup>14</sup> The figures, therefore, have an empirical basis but they are often used inaccurately. We

can begin with the claim that the port supports 65,000 jobs. From this the average citizen might conclude that 65,000 workers in the Jacksonville or northeast Florida region depend upon JAXPORT economic activity for their livelihood. A cursory examination of the actual report prepared by Martin Associates would alert one to the erroneous nature of such a conclusion. To gain a more accurate assessment, it is necessary to first consider the model used by Martin Associates to estimate the economic impact of a maritime port. The model is presented in Figure 1.

Figure 1. Martin Associates “Flow of Economic Impacts Through The Economy”<sup>15</sup>



As it pertains to employment, the model estimates four job categories: direct jobs, induced jobs, indirect jobs, and related user jobs. **Direct jobs** are “those jobs with the firms directly providing cargo handling and vessel service” or “those that would not exist if activity at the Port’s...cargo facility were to cease”.<sup>16</sup> **Induced jobs** are those that exist as a result of the demand for goods and services stimulated by the spending of workers occupying the direct jobs. This can include retail sector employment (e.g., based on the spending of direct job workers in grocery stores or restaurants) as well as the jobs in the wholesale sector that supplies the retail enterprises. **Indirect jobs** are those in the businesses that provide goods and services to the firms generating the direct jobs (e.g. office supplies, utilities, construction, etc.). **Related user jobs** are those with import, export (shippers and consignees) and distribution industries that send cargo through seaport terminals.

For related user jobs, Martin Associates is very explicit regarding the fact that “Related jobs are not dependent upon the seaport marine terminals to the same extent as are

the direct, induced, and indirect jobs since it is the demand for the final products which creates the demand for the employment...not the use of a particular seaport or marine terminal.”<sup>17</sup>

It is important to emphasize that there is nothing unusual or unorthodox about this economic impact model. The methodology used by Martin Associates is regarded as one conventional standard for such economic impact studies. Including induced, indirect, and related jobs provides a more complete picture of the potential contributions to economic development across the entire regional, state, and national economy. However, for most people interested in knowing about the employment-generating prospects of the local port, what they usually have in mind are the direct jobs (rather than induced, indirect, or related) for local residents. Looking exclusively at the direct jobs data paints a radically different picture from that suggested by JAXPORT.

Table I presents the employment impact data that are included in the Martin Associates report for the different job categories. What is most striking is the fact that of the total employment “supported” by Jacksonville’s cargo seaport, only 13.8% or 8,965 jobs are of the “direct” variety. In contrast, the vast majority – wholly 65.8% or 42,647 – are found in the “related job” category which, as Martin Associates emphasizes, “would not likely disappear if the marine terminals were rendered inoperable or closed to marine cargo or vessel/barge activity”. With regard to this particular estimated job category, the report includes the further admonition: *“It is to be further emphasized that when the impact models are used for planning purposes, related jobs should not be used to measure the economic benefits of a particular project. Related jobs are not estimated with the same degree of defensibility as direct, induced and indirect jobs. Therefore, only these three types of job impacts should be used in evaluating port investments.”*<sup>18</sup> (italicized in original).

Table I. Employment Impact Generated by JAXPORT for FY 2007/2008\*

<b>JOB CATEGORY</b>	<b>TOTAL</b>	<b>% of Total</b>
Direct Jobs	8,965	13.8
Induced Jobs	8,845	13.6
Indirect Jobs	4,399	6.8
Related Jobs	42,647	65.8
	64,856	

Source: Martin Associates, 2009. \* Includes public and private cargo terminals (excludes cruise ship activity).

None of this should minimize the significance of an industry that generates close to 9,000 direct jobs, with 79.4% held by residents of Duval County. Adding the induced and

indirect jobs brings the total to 22,209 jobs. In addition, the Martin Associates report estimates \$1.8 in direct, indirect, and induced personal wages and salaries, and \$130 million in state and local taxes, generated by the Jacksonville Port District terminal activities. Again these are significant contributions to the health of the state and regional economy. However, it is always important to keep the numbers in their proper context and to avoid unwarranted conclusions and misleading inferences.

This brings us to the second jobs claim by JAXPORT pertaining to the quality of employment -- that “these positions provide an average salary of \$43,980”. Again derived from the same Martin Associates report, there are two problems with this assertion. First, it implies that “these positions” are the 65,000 jobs that have been associated with the Jacksonville port. However, looking carefully at the Martin Associates report it is clear that this figure is based on data for only 410 firms and 8,965 workers.

Second, the \$43,980 is derived from the summation of all wages and salaries for the 410 firms providing services in the “port’s seaport community” divided by the total number of employees. While these data may be a useful way to gauge the aggregate dollar economic impact of the port, it is a highly crude indicator of the average income for port associated labor. It combines the compensation of all kinds of employees – from CEOs to janitors -- with no detailed breakdown of the different kinds of occupations that are more or less common, or that are more or less likely to be expanded with the growth of the port. And it communicates an inaccurate impression about the compensation levels of jobs in the port logistics sector. Again, the casual reader might conclude that \$40,000 is a common salary for people who will find jobs generated by the port’s expansion. This would not be correct.

Accurately determining the average wages and salaries of port-related jobs is more than simply a matter of academic interest. It reflects the *quality* of opportunities generated by port-related employment, the contribution to the larger quality of life in the city and region, and the prospects for Jacksonville to realize a central objective that was enshrined in former Jacksonville Mayor John Peyton’s *Blueprint for Prosperity* -- to raise per capita income so that Jacksonville would at least match, and ideally exceed, the national average.

There are data available that would permit a more accurate determination of the quality of employment generated from expanding the port economy. These are the Bureau of Labor Statistics’ Occupational Employment Statistics (OES) which include data for employment and wages of individuals in detailed occupational categories for cities, states, and counties.<sup>19</sup>

The specific occupations analyzed here are those most closely associated with the logistics sector and commonly selected for analysis by other researchers examining the logistics labor market. The data are for the Jacksonville Florida metropolitan statistical area.

Table Two (in Appendix) presents the 18 occupational categories most closely associated with the logistics industry along with median and mean hourly compensation and mean annual income from the May 2011 survey. There is wide variation in compensation levels ranging from high mean annual incomes of \$83,101 for Ship Engineers and \$74,320 for Captains, Mates, and Pilots of Water Vessels to a low of \$20,000 for Packer and Packagers.

There are several points worth noting about these occupations. First, ship engineers and captains/pilots clearly represent the kind of highly-skilled/highly-paid occupations that would contribute greatly to raising the regions per capita income. However, these two occupational categories make up a very small proportion of the employment within this sector (less than 1% using the data in Table Two) and requires, in most cases, either a bachelor's degree or extensive professional training. Second, in contrast, Packers and Packagers only require, in most cases, a high school degree but represent a very low-skilled/low-paid occupational category. Yet, these jobs are much more common in the logistics industry (5.7% using the data in Table Two).

If we look at the occupational position that accounts for the greatest proportion of jobs in the logistics sector (22% using the data in Table Two) it would be Laborers and Freight, Stock, and Material Movers. For this occupational category, the skill demands are low, educational requirements minimal, and compensation at \$26,290. Overall, for all workers in these 18 logistics occupations the mean income is \$30,393. For all occupational categories the median hourly wage levels are above the state minimum wage of \$7.31 in 2011.

Another standard against which to assess compensation levels is the "living wage" which is based on the cost of living expenses for a particular location.<sup>20</sup> For Duval County, it is \$8.72 for a single adult working fulltime, year-round. Unlike the minimum wage, the "living wage" is calculated for different family sizes and compositions and assuming that there is a single income provider. This yields the following living wage levels for Duval County.

<b>Hourly Wages</b>	<b>One Adult</b>	<b>One Adult, One Child</b>	<b>Two Adults</b>	<b>Two Adults, One Child</b>	<b>Two Adults, Two Children</b>
<b>Living Wage</b>	<b>\$8.72</b>	<b>\$16.55</b>	<b>\$13.27</b>	<b>\$21.11</b>	<b>\$27.44</b>

One lesson to take from the analysis of these OES data is the lion share of the employment opportunities in the logistics industry involve work carried out in and around warehouses (or what logisticians prefer to describe more accurately as “distribution centers” since the goods are typically in constant transit and redirected or only stored for very short periods of time at these facilities). As a consequence, one significant economic development implication of container port expansion is the investment, building, and operation of distribution centers within the northeast Florida region.

In Table Three (in Appendix), we can look more closely at the warehouse/distribution center-related occupational positions that account for 61% of logistics employment for these data. These are: Industrial Truck and Tractor Operators; Laborers and Freight, Stock, and Material Movers; Packers and Packagers; Shipping, Receiving, and Traffic Clerks; and Stock Clerks and Order Fillers. The mean income for workers in this large segment of the logistics labor market is \$25,460. Median hourly wage levels range from a low of \$8.94 (for Packers and Packagers) to a high of \$13.78 (Industrial Truck and Tractor Operators).

However, even this modest mean income level may be overstating the actual income for some of these workers. This is because the warehouse/distribution sector relies heavily on temporary workers as a way to manage the significant fluctuations in the flow of cargo. The use of temporary employment agencies relieves distribution center operators of the contractual obligations they would incur if the workers were fulltime year-round employees. There is also an increasing use of piece-work in this sector. That is, workers are paid by the number of trucks loaded and unloaded rather than time spent on the job. While employing workers through temp agencies and using piece-rate compensation schemes may be a cost-effective and competitive strategy for these firms, it translates into highly insecure employment for a large segment of the logistics sector workforce.<sup>21</sup>

Another segment of the logistics labor force that accounts for a significant proportion of total employment in this sector is drayage truck drivers who transport shipping

containers on and off the terminal. Like the warehouse/distribution center workers they are well-known as members of the growing ranks of “precarious workers” who have no secure formal contractual employment relationship with the trucking companies for whom they work. Almost all of these drivers work as “independent contractors” or “owner operators” compensated by the number of containers hauled rather than hours worked.<sup>22</sup> In addition, both groups of workers face a range of occupational-related health problems yet are unlikely to have health insurance.<sup>23</sup>

The one area of the logistics labor market that does provide higher paying jobs and that also stands to grow in numbers alongside the expansion of warehousing/distribution centers is first-line supervisors/managers. The two occupational positions listed at the top of Table Two are largely responsible for the management and supervision of the warehouse/distribution center workers in Table Three. The mean income for workers in these positions is \$49,788. While such jobs would contribute to a rise in Jacksonville’s per capita income, these positions only account for 4.1% of total jobs in this sector.

Overall, the occupational data analysis here suggests that the logistics industry -- while perhaps generating new and expanding regional employment opportunities and potential avenues of upward mobility for some low-skilled workers -- is not an engine of high-wage job growth and is unlikely to contribute significantly to raising the region’s per capita income.

Since we do not have projections on which occupational categories will likely expand and contract if and when the JAXPORT economy reaches full capacity, there is the possibility that the relative position and contribution of each of these occupations to total logistics-related employment might deviate from the data analyzed here. However, if we assume that expansion will involve greater numbers of workers in each occupational position, but no significant change in proportion of total logistics-related employment accounted for by each, these data should provide a reliable means to assess what an expanding logistics industry will likely mean for the local labor market. The UNF Ports Projects is planning to conduct an independent economic impact study in the Fall of 2012 to see how it compares with the Martin Associates report.

One factor that can contribute to high incomes in several of the logistics occupational categories is union organization. For example, many workers included in the “crane and tower operators” are represented by the International Longshoremen’s Association (ILA) which bargains collectively for almost all dock and port terminal workers on the East and Gulf coasts. Such union representation has translated into well-paying employment that is unusual for workers in the goods-moving logistics sector. While wage rates are heavily tiered on the basis of seniority and type of cargo, dockworkers handling containerized cargo can make between \$35,000 and \$75,000 a year plus benefits and retirement. One would expect the addition of two container terminals to

increase the number of such jobs but the Hanjin container terminal, slated for construction, will be a highly automated terminal at Dames Point designed to minimize the number of required workers in order to reduce labor costs to the terminal operator.

There is clear evidence that union representation translates into greater compensation and benefit levels for all workers and thus contributes to more desirable employment conditions.<sup>24</sup> However, the union presence in Florida generally, and the Jacksonville region specifically, is minimal. In fact, the paucity of organized labor is touted as a selling-point by JAXPORT in its presentations on economic development where it highlights that Florida is a “right-to-work” state and that private sector unionization in Jacksonville is only 3.3%.<sup>25</sup> This reflects the tension between conditions that many associate with an attractive business climate (e.g. a weak or non-existent union presence) and those that would contribute to improving the quality of work and compensation for workers.

One place where the port-related logistics industry and labor market has been studied most extensively is Riverside/San Bernardino, California. Known as the “Inland Empire”, this region is one of the largest logistics hubs in the country and is the immediate recipient of much of the freight and cargo that comes through the Los Angeles/Long Beach ports (the largest port complex in the United States). A recent study of that district points to the low-wage, insecure, non-union, and temporary employment that has characterized the logistics industry in that particular region.<sup>26</sup> From 2008-2010 the region lost 148,000 jobs signaling its extreme vulnerability to shifting economic conditions. The recession has left it with some of the highest unemployment and home foreclosure rates in the country.

Like many cities and regions, Jacksonville and North Florida are also continuing to suffer from the effects of the national economic crisis. However, there is evidence that Jacksonville is faring much worse than most other metropolitan communities. The most recent data indicate that out of 102 metropolitan regions, Jacksonville is 93rd in the wage growth rate from 2007-2012<sup>27</sup> and 99th in overall economic health<sup>28</sup>. In order for JAXPORT to have the positive economic impact that we hope for in the areas of quality employment, policy makers should study and learn from the experience of other major port regions and communities, and explore policies that will improve labor market conditions for all workers.

### ***Postscript on Inflated Job Numbers***

The practice of overstating the labor market and other benefits of economic development strategies and public works projects is unfortunately quite common. This should not be terribly surprising given that the stakes are high, powerful economic interests may be involved, and large sums of money rest in the balance. Under these

conditions an entirely accurate, balanced, and fair assessment of costs and benefits is unlikely to be revealed by the project proponents who are interested, first and foremost, in gaining approval and public support for the project.

In the research on public works projects, there is considerable evidence that costs are routinely and systematically underestimated and benefits inflated. According to Flyvbjerg et al.'s statistical analysis of 258 transportation infrastructure projects, cost and benefit estimates are not only highly and systematically misleading but best explained by "intentional strategic misrepresentation".<sup>29</sup>

Flyvbjerg has summarized in a simple equation the common strategy employed by those seeking public approval for mega-projects<sup>30</sup>:

$$\text{(underestimate costs) + (overestimated revenues) + (undervalued environmental impacts) + (overvalued economic development effects) = (PROJECT APPROVAL)}$$

The lesson for citizens is they should always be prepared to question grandiose claims made on behalf of any development project. They should have the opportunity to consider the source of the estimated costs and benefits. They should also understand the political and economic interests of those who are promoting particular economic development projects and strategies.

## **ENVIRONMENTAL IMPACT OF JAXPORT: AIR, WATER, AND DREDGING**

In evaluating the costs of any form of economic development, the environmental impact is one of the most significant. There are two environmental issues associated with the expansion of Jaxport. The first is the general environmental impact of the port on air and water quality as a result of routine port operations and how these may become increasingly important as the port expands. The second involves the environmental impact of the proposed channel dredging and deepening.

### ***Air and Water Pollution***

One of the most significant environmental costs, or "negative externalities", associated with a port economy is air pollution. It has been largely neglected in the discussion of the JAXPORT expansion given the more immediate and salient impact of dredging and deepening of the St Johns River. However, a casual study of any major port in the United States will reveal that air quality issues are the most significant of environmental health concerns. According to a recent report by the Environmental Protection Agency:

Diesel and other emissions from port activities have significant human health and environmental impacts in onshore communities. These impacts include increased cancer rates, asthma, other respiratory and cardiovascular diseases, and premature death. Port emissions also

contribute to the formation of ground level ozone, acid rain, and crop damage. EPA has recognized that diesel engines at ports create emissions that affect the health of workers and people living in nearby communities, and contribute significantly to regional air pollution. EPA has determined that diesel exhaust is “likely to be carcinogenic to humans by inhalation” and that this hazard applies to environmental exposures.<sup>31</sup>

Diesel fuel is burned by the container shipping vessels, the trucks moving containers on and off the port terminals, and the machines and equipment used by the terminal workers to move containers and cargo. The net effect is a major local environmental impact as noted by the EPA. There is considerable research by public health scientists of large U.S. ports documenting some of the consequences for those working in logistics occupations as well as larger human populations.<sup>32</sup> The emissions will also have a disproportionate negative effect on particular neighborhoods that are in proximity to the terminals or the transportation routes taken by trucks moving cargo and containers to and from warehouses/distribution centers and rail heads. Human exposure to diesel exhaust causes cancer, respiratory disease, and premature death due to the inhalation of particulate matter. Duval County already has a higher asthma death and hospitalization rate than the state of Florida as a whole, with the death rate in Duval County nearly double that of the entire state. It was reported that in 2005 the total cost of asthma hospitalizations in Duval was \$17.7 million.<sup>33</sup> Such costs are rarely included when weighing the costs and benefits of economic development projects.

Based on a 2009 survey of JAXPORT truck drivers, 80% of the trucks were pre-2004 and 60% were at least ten years old.<sup>34</sup> Diesel emissions from these earlier model trucks are much greater and they pose serious public health risks to both the drivers and the communities through which they travel. It is for this reason that other ports, most notably The Port of Los Angeles, have put in place “clean trucks” concession agreements that require all vehicles entering the terminals to meet a series of increasingly stringent emissions standards. More specifically, as of 2012, the Port of Los Angeles banned all trucks that failed to meet the 2007 Federal Clean Truck Emission Standards. The policy has had a significant impact in reducing in diesel particulate matter emissions.

All things being equal, if the number of ships, cargo, and trucks increase as a result of JAXPORT expansion, so too will the emissions. Because the expansion of port activity could further exacerbate local public health condition, the port and its tenants should work together to explore and develop alternatives to diesel fuel burning energy. Based on a conversation with JAXPORT officials responsible for environmental compliance, it seems that while there is no formal long-term plan in place pertaining to the reduction of air pollution, the port works with its tenants in a collaborative and constructive manner to exploit opportunities for environmentally responsible modifications to

existing and expanding operations. The port also seeks federal grants that advance clean air objectives. Most notably, the Intermodal Container Transfer Facility should reduce the number of trucks moving containers and make a major contribution to diesel emission reduction.

Ports internationally and nationwide are recognizing the importance of environmentally sound policies. The International Association of Ports and Harbors has created the World Ports Climate Initiative committed to reducing greenhouse gas emissions.<sup>35</sup> The European Sea Ports Organization has formed an EcoPorts network devoted to environmentally responsible port operations and the dissemination of best practices.<sup>36</sup> Ports in the United States have signed on to Green Ports Initiatives<sup>37</sup> or have developed Clean Air Action Plans. As it pertains to air quality, the most common objectives and best practices involve: replacing diesel-fuel generated power with electrical power; providing on-dock electrical power for container vessels; providing incentives to shipping lines to use vessels designed to minimize emissions; providing incentives to port-related businesses and tenants who develop and implement environmentally sustainable practices; and restricting terminal entry only to trucks that meet designated emission standards. These organized efforts serve to highlight and incentivize local environmental health concerns. If JAXPORT seeks to establish itself as a “green port”, with forward looking environmental and sustainability practices, there are expanding resources to support such an initiative. In addition to the obvious health benefits, it would also distinguish Jacksonville from other port cities.

Water quality is also impacted by the routine operations of maritime ports. The most significant issues are related to bilge and ballast water which are periodically released by container ships. These can have potentially harmful effects on the marine environment. Bilge water is found in the hull of the ship. The water collects and contains oils and other chemicals that are released from the engines. This water has to be periodically flushed, with the petroleum and chemicals removed. If this is done correctly and all environmental regulations followed, it should have minimal environmental impact.

Ballast water is water taken into the ship for purposes of maintaining the balance and stability of the vessel. The harm occurs when ballast water collected in one geographic location is released in another thus potentially introducing foreign and invasive species to a local ecosystem. Procedures for treating the water, and also where and how it should be released, are enforced by global conventions. In spite of these conventions, the most recent study of the “state of the St. Johns River” regards the presence of invasive non-indigenous aquatic species as a “worsening condition” and the river is at “high risk”. More specifically, they note that “There is a high probability that future invasions of non-native aquatic species will occur in the Lower St. Johns River Basin...the two most significant vectors for transporting non-native organisms were

humans and ship ballast...and that both of these vectors are expected to increase in coming years, thereby increasing the likelihood for additional and potentially more frequent introductions.”<sup>38</sup>

## **Environmental Impacts of Dredging**

Currently, the most serious environmental concerns pertain to the St Johns River watershed and the potential impact of the proposed dredging and deepening project on the lower St Johns River basin (LSJRB). As stated in the annual State of The River Report: “The LSJRB in Northeast Florida has long been recognized as a treasured watershed -- providing enormous ecological, recreational, socioeconomic, and aesthetic benefits. However, during recent years, it has also been recognized as a threatened watershed, which is critically in need of resource conservation, water quality improvement, and careful management.”<sup>39</sup> One of the threats to the watershed is further dredging and deepening.

The Army Corp of Engineers will be conducting a comprehensive Environmental Impact Study of the deepening project. At this point, most observers believe one of the most significant effects will be salinity encroachment into the river that will threaten and impact a variety of river and estuarine species including marine mammals and plants.<sup>40</sup>

One of the only systematic studies to date on salinity effects was included in the larger study of the proposed St. Johns River water withdrawal in the St. Johns River Water Supply Impact Study.<sup>41</sup> The analysis considered a variety of scenarios that might impact the hydrology and chemical composition of the river in addition to the primary focus on water withdrawal. One scenario was described as follows: "The channel deepening scenario used for this study is conservatively large and assumes creation of a 50 ft (NGVD29) navigational channel from the jetties at the mouth of the St. Johns River to Jacksonville (Talleyrand Marine Terminal) and including the north Blount Island channel."

The relative seriousness of the harbor deepening project was highlighted in the review of the water withdrawal study by the National Academy of Sciences: “It is important to note that simulations for this scenario indicated that dredging would have much larger effects on up-river movement of salinity than any of the water withdrawal scenarios the District examined.”<sup>42</sup>

More specifically, the increased salinity would be expected to shift the distribution of marine and estuarine species south (upstream) in the St. Johns River while displacing the fresh water species that currently live in that zone of the river. Aquatic or wetland species that cannot tolerate saline waters -- cypress, for example -- would be expected to die off as salinity increases. A similar die off of submerged aquatic vegetation, such as Tape Grass, which serves as food for manatees and habitat for a variety of juvenile

species of shrimp, crabs and fish, would negatively impact those species as well. However, the degree of salinity increase that may occur in the river is highly uncertain since rainfall, tidal cycle, storm events and other river impacting situations are impossible to predict.<sup>43</sup>

In addition to increased salinity, the dredging process itself can have environmental impacts by increasing water turbidity (cloudiness), harming marine life habitats, and disturbing threatened and endangered species. Dredging may also stir up and release buried contaminants.

There is a wide range of marine life currently inhabiting the St. Johns River and increases in vessel traffic or modifications to the aquatic conditions may impact these populations. Among the various species are bottlenose dolphin and manatees. Researchers at the University of North Florida's Dolphin Research Program report generated sighting histories for over 316 individual dolphins in the St. John's River. In terms of JAXPORT related activity, they note: "Dredging operations throughout the St. Johns River may have both acute and chronic effects on the health and behavior of bottlenose dolphins. The increase in salinity that may be observed further up river following deepening and widening of the channel may expand the range of bottlenose dolphins further up river."

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Lastly, the proposed dredging operation will produce massive quantities of material and sediment. According to an Army Corp spokesperson, dredging just to 45 feet would produce an estimated 16 million cubic yards of material. Because these sediments can be contaminated with accumulations of chemical and industrial wastes, and pose potential risks to marine and human health, they must be analyzed and either treated or placed in areas that limit their contact with the marine environment or human populations.<sup>45</sup> For the St. Johns this would mean disposal in various locations along the river and inland. Sites have already been designated and include Buck and Bartram Islands.

In assessing the costs of JAXPORT expansion, one must consider not just the \$1 billion cost of modifications to the river channel but also the less quantifiable but equally important environmental costs. Citizens are encouraged to consult the Army Corp of Engineer's Environmental Impact Study of the deepening project when it becomes available.

## **THE WAR BETWEEN THE PORTS: East Coast Ports and Overcapacity**

This final section of the report considers the future prospects of JAXPORT as a major East coast port. There is currently intense competition among East Coast ports for the anticipated increase in cargo associated with the Panama Canal expansion. (Table 4 lists the largest East coast ports and the current depth of their channel.) Almost every port

is making significant investments in infrastructure and seeking Federal funding for coastal engineering projects. Many of these investment plans were developed prior to the Great Recession. At that time there was a unique set of conditions responsible for the massive consumption of imported goods from Asia. Today one must consider the extent to which overcapacity will continue to plague the shipping industry even if the global economy recovers. The future of JAXPORT may depend on the simple matter of supply and demand. An oversupply of container ships and port terminal space and infrastructure, in the face of depressed global trade and commodity imports, could result in widespread underutilization or excess capacity for all maritime ports.

For Jaxport, such a possibility -- underutilized infrastructure coupled with lower than expected levels of container throughput -- may also impact the ability to secure funding for the project to dredge and deepen the St. Johns River. The local port economy may be caught in a cruel Catch-22 in which the low container traffic at the Dames Point terminals weakens the justification for a costly dredging project while the inadequate depth of the river makes it impossible to attract the post-Panamax carriers.

Observers of the maritime port industry are beginning to highlight the obvious and apparent dysfunctional situation of multiple East Coast ports competing and expanding for limited and continuing depressed levels of container cargo. The Journal of Commerce notes the “serious overhang of unused terminal capacity” and the fact that major East Coast ports such as Savannah, Charleston, and New York/New Jersey are all currently operating at less than 60% container capacity.<sup>46</sup> In spite of this, East Coast ports are still projecting \$15 billion in infrastructural upgrading over the next ten years.

**Table 4: Largest U.S. East Coast Ports Based on TEUs 2011**

	TEU Throughput 2011	Current Depth of Harbor/Channel
<b>New York/New Jersey</b>	<b>5,503,485</b>	50
<b>Savannah, GA</b>	<b>2,944,678</b>	42
<b>Hampton Roads, VA</b>	<b>1,918,029</b>	50
<b>Charleston, SC</b>	<b>1,381,352</b>	45
<b>Miami, FL</b>	<b>906,607</b>	42
<b>Jacksonville, FL</b>	<b>899,258</b>	40
<b>Port Everglades, FL</b>	<b>880,999</b>	42
<b>Baltimore, MD</b>	<b>631,804</b>	50

<b>Philadelphia, PA</b>	<b>291,091</b>	<b>40</b>
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Source: American Association of Port Authorities. North American Port Container Traffic Ranking 2011. Website at: <http://www.aapa-ports.org/home.cfm>

There is even some question over the actual impact of the Panama Canal expansion on East coast cargo. According to port consultant John Martin “the idea that the Panama Canal will instantly bring more business to the Eastern Seaboard is an ‘urban myth.’ Whatever business the Atlantic ports could easily take from Los Angeles and other Pacific cities has already moved east”.<sup>47</sup>

Investment in, and the building and expansion of, maritime port facilities does not generate its own demand. In the language of economics, the demand for these services is “derived”, meaning that it is a consequence of the demand for something else, namely goods that are either imported or exported. In a global recession, where the demand for goods is severely depressed, port economies will suffer regardless of the modernized state of the port terminal facilities.

If there is a finite level of demand – for consumer or producer goods – ports will be competing in a zero-sum environment. Cargo that moves through Savannah is cargo that will not move through Jacksonville. Both ports may build world class container terminals, but they may operate at far below their full capacity. The losers will not just be the ports that are unable to attract the cargo but also the taxpayers who are financing underutilized port infrastructure.

All of this has led observers to ask why there is no national policy that would evaluate the various ports and allocate resources based on a rational assessment of the costs and benefits of each project in relationship to each other. This would inevitably necessitate picking winners and losers and creating a division of labor among the ports as well as a hierarchy of prominence. But it would also avoid the wasteful duplication and redundancy of a current system that seems intent on building a greater number of deep channel ports than are needed to accommodate the given level of cargo.

The concern is echoed by Seaweb, the non-profit organization dedicated to ocean health, as it pertains to the financial and environmental cost of dredging: “The issues surrounding port dredging are exacerbated by the absence of a national planning system which could allocate appropriate types of ships (i.e. size and draft) to each port, based on environmental considerations and dredging needs. Because ports are competitive businesses, they vie for ship traffic instead of cooperating to distribute it according to harbor and environmental capacities.”<sup>48</sup>

These concerns may have prompted the recent request from Congress to the Army Corp of Engineers, asking: “how the Congress should address the critical need for

additional port and inland waterway modernization to accommodate post-Panamax vessels.” In response, the Army Corp recently released its report titled “U.S. Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels”. While acknowledging the great uncertainty in predicting the volume or direction of global cargo flows, the report also emphasized that the “expanded canal could provide a significant competitive opportunity for U.S. Gulf and South Atlantic ports and for U.S. inland waterways – if we are prepared.”<sup>49</sup>

More specifically, with regard to the issue of an East Coast port hierarchy, the report makes a distinction between “post-Panamax ready” and “cascade ready” ports. Post-Panamax ready ports would have a depth of 50 feet and accommodate the largest vessels. Cascade-ready ports would include lower-tier ports and accommodate the re-deployed smaller vessels. As stated in the report summary: “A system vision should extend beyond the major ports to include lower tier ports. A navigation system vision should address the cascade effect and its impact on infrastructure for shallower ports. Analysis of individual ports will determine whether the port will need to accommodate post-Panamax vessels or the cascade effect.”<sup>50</sup> Finally, “For U.S. ports to be ready to take advantage of *post-Panamax* vessel opportunities, major ports not only need to be ‘*post-Panamax* ready’, but second tier ports need to be ‘cascade ready’ as they in turn have the opportunity to take advantage of larger vessels that begin to service their trade. For the purposes of this report IVR defines “cascade ready” as a channel depth of 45 feet.”<sup>51</sup>

This Corps report does not indicate which ports will be post-Panamax and which will be cascade, but it clearly suggests a movement toward planned port differentiation as individual port infrastructure projects are evaluated.

Based on conversations with stakeholders and observers of the port logistics industry, there is considerable opinion that Jacksonville will fall into the lower or second tier. This does not mean that JAXPORT and the port-logistics sector will play an insignificant role in the regional economy. It simply means that a more realistic scenario must be acknowledged. This position was recently advanced by the The Jacksonville Business Journal which suggested JAXPORT modify its mega-port aspirations and pursue “Plan B”:

What we need now is a reasonable reassessment of Jaxport’s potential, the niche markets we can pursue, the exports we can grow, and how we can build trade with the fast-growing countries of South and Central America, Brazil first and foremost. Our port likely won’t make it to mega-port status, but were still very much in the game.<sup>52</sup>

Taken together, these recent developments would indicate that there is an emerging consensus toward a more rationalized and strategic plan for East coast ports, an acknowledgement that not all ports can aspire to post-Panamax status, and that JAXPORT would be a likely candidate for “cascade” status. To a large extent, the ultimate long-term prospects for JAXPORT will be determined by the Federal government led by the Army Corp of Engineers. The Army Corp is in the early stages of their channel deepening study that will yield an Environmental Impact Statement, an economic impact study, a cost-benefit analysis, and a final recommendation on whether to deepen and, if so, the number of feet based on the calculus of costs and benefits.

## CONCLUSION AND RECOMMENDATIONS

The intended purpose of this study was to provide the community with greater information about the JAXPORT enterprise and the proposed expansion of its economic activities. As a potential economic engine for the city of Jacksonville and the Northeast Florida region, citizens should have an understanding of some of the implications of a growing port logistics sector. The report has focused on the proposed infrastructural improvement projects involving the St Johns River and the Dames Point container terminal, the labor market consequences as they relate to the quantity and quality of employment in this sector, and the environmental impact of ports generally and channel dredging/deepening in particular. The final section considered the proposed JAXPORT expansion in the larger context of competing East coast ports. It is hoped that this report will give members of the community and various stakeholders a better understanding of the local implications of pursuing a port logistics growth strategy. Ideally, the report will also contribute to greater levels of informed citizen participation and democratic deliberation on the economic development of the city and region.

The port logistics sector will inevitably play an important role for the local economy. There is the potential for the impact of this sector to increase significantly in coming years. In order for the sector to have the most beneficial economic impact, we should be discussing and pursuing those policies and practices that will minimize costs and maximize benefits for the larger community. These policies and practices can be based on and informed by the experiences of larger ports, the existing research literature, and the most socially and environmentally responsible practices of the industry. In the spirit of contributing to a constructive dialogue, the following recommendations are offered:

- In order to avoid excessive and costly investments in redundant infrastructure and the likelihood of terminal overcapacity across the East coast at ports and logistics hubs, Jacksonville and JAXPORT should be part of a larger rational planning process for East

coast ports that would further clarify the Army Corp's proposed post-Panamax/Cascade port differentiation

- Given the estimated dollar cost of the St. Johns River deepening/dredging along with the anticipated environmental impact on a watershed that is already struggling to regain its health, there should be a clear and unambiguous economic net gain to not just the shippers, carriers, and logistics firms but to the larger community
- There is a growing “green ports” and “eco-port” movement nationally and globally and JAXPORT should sign on to these initiatives that formally commit the port to the most environmentally sound practices and policies
- Based on the experience of other large and growing ports that have faced increases in diesel and other emissions, wherever possible efforts should be made to replace diesel engines with electrical power at and around the port terminals thus reducing hazardous carbon emissions
  - JAXPORT in conjunction with other stakeholders should explore the feasibility of developing shore-side electrical power for container vessels and create incentives (as at the ports of Los Angeles and Long Beach) for carriers to reduce vessel emissions through Tier II and Tier III engines to reduce carbon emissions
  - Following the example of the Port of Los Angeles, JAXPORT should mandate the use of post-2007 clean diesel trucks at all JAXPORT terminals to reduce carbon emissions
- In order for the expansion of JAXPORT to have the most positive effect on the local labor force and employment opportunities, stakeholders should work together to establish formal employment relationships for the drayage drivers and warehouse workers in the logistics sector to increase the economic security of the local workforce
  - Jobs for blue-collar workers in the logistics sector should pay a living wage that will contribute to financial security, local multiplier effects through consumer spending, and a better quality of life for all members of the community
- JAXPORT, public officials, and other stakeholders should provide accurate information on the true costs and benefits of the port economy so that citizens can make informed judgments about urban development strategies that make a claim on increasingly scarce

limited community, state, and national resources and which will have long-term effects on the regional quality of life

- Taxpayer and government support and incentives for the logistics industry should be linked to a demonstrated commitment to and creation of jobs that provide fulltime employment at a living wage

## APPENDIX

**Table 2: Wage and Income Data for Logistics Occupations: Jacksonville, FL: May 2011**

		Wage Estimates			
Occupation Title	Employment	Median Hourly	Mean Hourly	Mean Annual	
First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	900	\$19.49	\$20.48	\$42,590	
First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	1,020	\$25.40	\$26.99	\$56,140	
Driver/Sales Workers	2,240	\$9.44	\$11.76	\$24,460	
Truck Drivers, Heavy and Tractor-Trailer	9,110	\$16.40	\$17.52	\$36,440	
Truck Drivers, Light or Delivery Services	3,780	\$12.49	\$14.95	\$31,100	
Sailors and Marine Oilers	150	\$12.15	\$13.15	\$27,350	
Captains, Mates, and Pilots of Water Vessels	320	\$31.98	\$35.73	\$74,320	
Ship Engineers	120	\$41.70	\$39.91	\$83,101	
Transportation Inspectors	40	\$22.79	\$26.34	\$54,780	
Transportation Workers, All Other	130	\$15.34	\$17.29	\$35,970	
Conveyor Operators and Tenders	160	\$16.14	\$16.16	\$33,610	
Crane and Tower Operators	830	\$20.10	\$20.34	\$42,320	

Industrial Truck and Tractor Operators	2,020	\$13.78	\$13.96	\$29,040
Laborers and Freight, Stock, and Material Movers, Hand	10,230	\$12.37	\$12.64	\$26,290
Packers and Packagers, Hand	2,690	\$8.94	\$9.62	\$20,000
Shipping, Receiving, and Traffic Clerks	3,010	\$12.90	\$14.10	\$29,320
Stock Clerks and Order Fillers	9,460	\$10.90	\$11.64	\$24,200
Logisticians	600	\$29.70	\$31.26	\$65,020
MEAN INCOME FOR ALL LOGISTICS OCCUPATIONS = \$30,393				

**Table 3: Wage and Income Data for Warehouse Workers, Jacksonville, FL**

Occupational Title	Employment	Median Hourly	Mean Hourly	Mean Annual
Industrial Truck and Tractor Operators	2,020	\$13.78	\$13.96	\$29,040
Laborers and Freight, Stock, and Material Movers, Hand	10,230	\$12.37	\$12.64	\$26,290
Packers and Packagers, Hand	2,690	\$8.94	\$9.62	\$20,000
Shipping, Receiving, and Traffic Clerks	3,010	\$12.90	\$14.10	\$29,320
Stock Clerks and Order Fillers	9,460	\$10.90	\$11.64	\$24,200
Mean Income for Warehouse Workers = \$25,460				

Source: These estimates are calculated with data collected from employers in all industry sectors in Jacksonville, FL, a metropolitan statistical area in Florida. Area Occupational Employment and Wage Estimates, May 2011. United States Department of Labor, Bureau of Labor Statistics.

## ENDNOTES

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<sup>1</sup> Cargo data for Jaxport can be accessed on the Jaxport website at: <http://www.jaxport.com/cargo/maritime-resources/marine-statistics>

<sup>2</sup> Martin Associates, Business and Development Strategy: Port of Jacksonville (April 25, 2005) p. 2.

<sup>3</sup> Martin Associates, Florida Logistics Center Market Analysis Update, Prepared for the Florida Department of Transportation (January 14, 2012) p. 4.

<sup>4</sup> “Bring The Noise” Campaign. Website at: <http://bringthenoiscampaign.com/>

<sup>5</sup> David Bauerlein, “JaxPort CEO says dredging project could cost \$100 million more than thought,” Florida Times-Union (October 20, 2009).

<sup>6</sup> Mark Szakonyi, “Jacksonville Ports Seeks Deepening Speedup”, Jacksonville Business Journal (February 1, 2010).

<sup>7</sup> Szakonyi.

<sup>8</sup> Army Corp of Engineers, “Final General Re-Evaluation Report for Savannah Harbor Expansion Project” (January, 2012). <http://www.sas.usace.army.mil/shexpan/GRR.html>  
*The report states: “Similarly, the project benefits would also increase as the channel depth increases. Those benefits would consist of transportation cost savings produced when larger Post-Panamax vessels operate more efficiently and experience fewer tidal delays. Increases in the number of containers moving through the Port are expected in the future. However, no changes in that growth are expected to occur as a result of deepening the harbor. That expected growth of cargo would occur with or without a deepening project.” (p. 295).*

<sup>9</sup> Army Corp of Engineers, “Final General Re-Evaluation...”

<sup>10</sup> For the Army Corp report on Mile Point go to: <http://www.jaxport.com/sites/default/files/docs/2011.08.milepoint-armycorps.pdf>

<sup>11</sup> Historical timeline of river projects based on Powerpoint presentation by Quinton White, Jr., Professor of Biology and Marine Science, Jacksonville University. Presentation title “St. Johns River: Historical Perspective”.

<sup>12</sup> Martin Associates, “Florida Logistics Center Market Analysis Update”, Prepared for the Florida Department of Transportation (January 14, 2012) p. 4.

<sup>13</sup> Figures cited on Jaxport webpage. Viewed on: July 3, 2012.  
<http://www.jaxport.com/about-jaxport/overview/economic-impacts>

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<sup>14</sup> Martin Associates, “The Local and Regional Economic Impacts of Jacksonville Port Authority Fiscal Years 2007/2008”, (April 1, 2009).

<sup>15</sup> Martin Associates, p. 14.

<sup>16</sup> Martin Associates, p. 7.

<sup>17</sup> Martin Associates, pp. 7-8.

<sup>18</sup> Martin Associates, p. 25.

<sup>19</sup> For a similar analysis using these data see Jock O’Connell, “Growing the SAOCOG Region’s Logistics Sector: How Much, How Fast?” (March 30, 2007).  
<http://jockoconnell.tripod.com/logisticsjobs.html>

<sup>20</sup> The Living Wage Calculator is a project directed by Amy K. Glasmeier at the Massachusetts Institute of Technology. The data presented here are available at: <http://livingwage.mit.edu/>

<sup>21</sup> Warehouse Workers for Justice, Bad Jobs in Goods Movement: Warehouse Work in Will County,IL. (2010)

<sup>22</sup> See David Bensman, “Port Trucking Down The Low Road: The Sad Story of Deregulation,” Demos (July 2009). Online at:  
<http://www.demos.org/sites/default/files/publications/Port%20Trucking%20Down%20the%20Low%20Road.pdf>

<sup>23</sup> Warehouse Workers for Justice, Bad Jobs in Goods Movement: Warehouse Work in Will County,IL. (2010).

<sup>24</sup> James T. Bennett and Bruce E. Kaufman, eds., What Do Unions Do? A Twenty-Year Perspective (New Brunswick, NJ, Transaction Publishers, 2007).

Lawrence Mishel with Matthew Walters, How Unions Help All Workers. (Economic Policy Institute Briefing Paper. Washington, DC. 2003). Online at:  
[http://www.epi.org/publication/briefingpapers\\_bp143/](http://www.epi.org/publication/briefingpapers_bp143/)

<sup>25</sup> See PowerPoint presentation by Jaxport for the Jacksonville Economic Development Commission. Online at: <http://www.coj.net/departments/jacksonville-economic-development-commission/docs/business-development/jacksonville-business-overview/jaxporttojedcmay-06.aspx>

<sup>26</sup> Edna Bonacich and Juan David DeLara, Economic Crisis and the Logistics Industry: Financial Insecurity for Warehouse Workers in the Inland Empire (University of California-Riverside, 2009).

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- <sup>27</sup> Michael Clinton, "Jacksonville employees earn less than they did in 2007". Jacksonville Business Journal. (September 12, 2012).
- <sup>28</sup> Ashley Gurbal Kritzer, "Jacksonville's economy one of worst in nation". Jacksonville Business Journal (September 10, 2012).
- <sup>29</sup> B. Flyvbjerg, M.S. Holm, & S. Buhl, S. "Underestimating costs in public works projects", *Journal of the American Planning Association* 2002 Volume 68(3) p. 279-295.
- <sup>30</sup> Flyvbjerg, B. (2005). "Machiavellian megaprojects", *Antipode*, 2005 Volume 37 (1) p. 18-22.
- <sup>31</sup> United State Environmental Protection Agency, "EPA Needs to Improve Its Efforts to Reduce Air Emissions at U.S. Ports". Report No. 09-P-0125. (March 23, 2009)
- <sup>32</sup> See Randall Bluffstone and Brad Ouder Kirk. "Warehouses, Trucks, and PM2.5: Human Health and Logistics Industry Growth in the Eastern Inland Empire", *Contemporary Economic Policy*, Vol. 25, No. 1, January 2007, p. 79-91; E. Garshick, F. Laden, J.E. Hart, J. E., B. Rosner, M.E. Davis, E.A. Eisen, & T.J. Smith, T. J. "Lung Cancer and Vehicle Exhaust in Trucking Industry Workers", *Environmental Health Perspectives*, 2008 Volume 116 (10), p. 1327-1332; and Andrea M. Hricko, "Ships, Trucks, and Trains: Effects of Goods Movement on Environmental Health", *Environmental Health Perspectives*, 2006 Vol. 114 (4) pp. A204-A205.
- <sup>33</sup> Larry Hannan. "Asthma in Duval a 'Local Epidemic'", Florida Times-Union. (February 8, 2008).
- <sup>34</sup> David Jaffee and Adam Rowley. "Hauling Containers: Port Drayage Drivers in the Logistics Supply Chain" Paper presented at the *Southern Sociological Society* meetings (April 2010).
- <sup>35</sup> World Ports Climate Initiative. International Association of Ports and Harbors. Website at: <http://wpci.iaphworldports.org/>
- <sup>36</sup> EcoPorts. European Sea Ports Organization. Website at: <http://www.ecoport.com/>
- <sup>37</sup> GreenPort. Website at: <http://www.greenport.com/home>
- <sup>38</sup> "State of the River Report for the Lower St. Johns River Basin, Florida: Water Quality, Fisheries, Aquatic Life, Contaminants & Aquatic Toxicology" (2012) p. 180. <http://www.sjrreport.com/media/pdf/sjrreport2012.pdf>
- <sup>39</sup> State of the River Report, p.3.
- <sup>40</sup> State of the River Report.
- <sup>41</sup> St. Johns River Water Management District, "St Johns River Water Supply Impact Study". (2012). Online at: <http://floridaswater.com/watersupplyimpactstudy/>

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<sup>42</sup> National Research Council. "Review of the St. Johns River Water Supply Impact Study: Final Report", Committee to Review the St. Johns River Water Supply Impact Study. National Academy of Sciences. (2011) p. 103. Online at: [http://www.nap.edu/catalog.php?record\\_id=13314](http://www.nap.edu/catalog.php?record_id=13314)

<sup>43</sup> Assessment of salinity effects based on personal communication with Dr. Quinton White, Jr., Executive Director, Marine Science Research Institute. Jacksonville University. (2012).

<sup>44</sup> Quincy A. Gibson and Julie P. Richmond. Unpublished research report. University of North Florida, Dolphin Research Program (July, 2012).

<sup>45</sup> See D. Turgeon, J. Hameedi, M.R. Harmon, E.R. Long, K.D. McMahon, K.D., and H.H.White, "Sediment Toxicity in U.S. Coastal Waters", Office of Ocean Resources Conservation and Assessment (1998). Online at: <http://www.ccma.nos.noaa.gov/publications/sedtoxbrochure.pdf>

<sup>46</sup> Peter Tirschwell. "Excess Capacity Trumps East Coast Port Battles for Investment". The Journal of Commerce. (April 13, 2012). See also Dan Chapman. "No one dares be left out of the race: critics say a national strategy should govern the deepening of ports." Atlanta Journal-Constitution (April 3, 2012).

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<sup>50</sup> U.S. Army Corp, p. xv.

<sup>51</sup> U.S. Army Corp, p. 48.

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