

Overview of the port



The Charleston Phoenix

Large port projects in the US must now address much more than impacts on the aquatic environment, writes JM 'Bo' Ellis

In about four years, a former US Navy shipyard in Charleston, South Carolina, is set to be reborn as a thriving port – but right now it's a site of vacant, decrepit buildings, contaminated soil and groundwater.

The groundbreaking ceremony was held this May, but behind it has been one of the most extensive environmental assessment projects ever launched as the project's size and scope prompted a wide range of concerns from both regulators and the community.

Developing the assessment and the environmental impact statement (EIS) required by the US Army Corps of Engineers (USACE) – who have the authority to deny a permit – was a complicated, lengthy process. And getting the green light required comprehensive

analysis of many environmental factors, plus vigorous community outreach.

For port developers, making a project like this a reality requires planning to minimize impacts, good communication with all interested parties and the willingness to incorporate a sound mitigation strategy.

PROJECT SCOPE

The 287-acre facility, owned by the South Carolina State Ports Authority (SCSPA), will include three berths capable of docking post-Panamax ships with most of the terminal paved and used for processing and storing containers and for support facilities.

The project will require paving undeveloped land, thereby increasing storm water runoff and pollutants entering the storm water system. It will also require

dredging 6.5M cubic yards of material, result in the loss of 9.6 acres of tidal wetland, 2.4 acres of freshwater wetland and 56.6 acres of open water on the Cooper River.

USACE hired Applied Technology & Management (ATM) in 2003 as a third-party National Environmental Policy Act (NEPA) support contractor as part of their review of the permit application. Third-party status – meaning ATM did not represent the owner or any special interest group – required the firm to conduct objective evaluations to assess environmental impacts on:

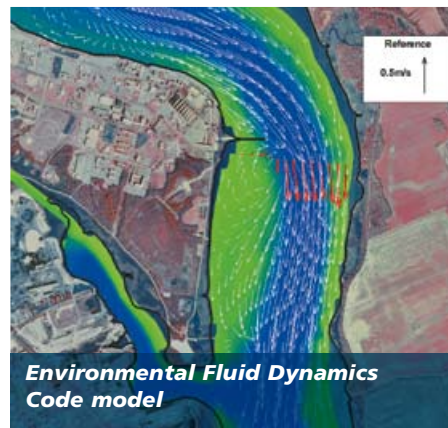
- ◆ Water and air quality
- ◆ Storm water runoff
- ◆ Soil contamination
- ◆ Traffic
- ◆ Noise and light



Port of Charleston aerial view showing the development area



Ground breaking ceremony in May for the new terminal



Environmental Fluid Dynamics Code model

◆ Any known endangered species.

Under the best-case scenario, ATM expected the permitting process to take 18 months to two years, but with the final EIS released in December 2006, it actually took three years.

Why so long? The primary cause for the delay was the addition of an access roadway feasibility study that considered several alternate routes.

USACE served as the responsible federal agency, setting requirements for the EIS. Complicating matters for port planners throughout the US, each Corps district and each state's environmental agencies may have unique regulatory and policy requirements, while new issues may also arise...

In the past, port projects in the Charleston region had not addressed many issues to the detail required for this 'public interest review' – eg: ATM were required to assess the impact of future air emissions from increased truck traffic and ship traffic through air dispersion modelling. USACE had previously required this of port projects in California and Texas, where air quality conditions are more severe, but this type of cumulative impact assessment was a first for a port in the south eastern US.

In addition, and causing an unexpected schedule delay, concerns were expressed about the nearly extinct Northern Right Whale. While the whale does not enter the Cooper River or area of project construction, its migration path crosses shipping lanes leading into the port.

Only about 300 of these animals are estimated to survive in the North Atlantic and that prompted a review of projected vessel calls to assess the future risk of ships striking whales. Although the potential for collisions was determined to be low, SCSPA agreed to fund overflights of the migratory routes to monitor the situation – one of the first times that the National Marine Fisheries Service requested an assessment of impacts from possible *future* shipping traffic for a port terminal project in the Carolina coastal region.

COMMUNITY CONCERNS

ATM conducted early, aggressive community outreach, which was essential to a successful scoping process.

Using a mailing list of about 1,000 area residents that USACE had compiled, the firm sent out notices of open house meetings in which project details were presented and also visited surrounding neighbourhoods to encourage residents, particularly community leaders, to attend these meetings. A project website also offered detailed information.

During meetings, ATM addressed all negative impact concerns, while also highlighting the positive – the expected hundreds of new jobs resulting from the development (part of the port's mitigation plan was to offer a training programme and give hiring priority to people living nearby).

Area residents' chief concern was increased truck traffic to and from the port. Although nearby local roads could provide

The Suez Connection

South Carolina State Ports Authority has signed a four-year agreement with the NEW WORLD ALLIANCE (NWA), securing current business and adding a weekly service through the Suez Canal

NWA includes major carriers American President Lines, Hyundai Merchant Marine and Mitsui OSK Lines and SCSPA CEO Bernard Groseclose Jr. commented: "The NWA carriers have been strong partners in the Port of Charleston's success and they are set to grow rapidly with the new Suez Express Service. This is a significant addition of cargo and vessels to our port."

Suez Express, which begins this month, will deploy eight vessels capable of carrying between 4,000 and 4,500 teu and will include calls in Colombo, Jebel Ali, Kelang and Singapore.



a connection to the major I-26 road, SCSPA decided to create a 1.5 mile-long dedicated access road that will connect the terminal to the highway to avoid the impacts of truck traffic through residential streets.

REGULATORS' REQUIREMENTS

Regulators were concerned about impacts to water quality, because deepening berths may reduce dissolved oxygen in the water, and were also concerned about loss of aquatic habitat.

To offset impacts to aquatic resources and wetlands, SCSPA will re-create 22 acres of tidal marsh and restore over five miles of oyster reefs in and around Charleston Harbour.

The *Environmental Fluid Dynamics Code* (EFDC), a numerical model used for simulating three-dimensional flow, transport and biogeochemical processes in surface water systems, was used to assess the degree to which alteration of the riverbed would affect sedimentation and long-term maintenance dredging of the navigation channel.

This tool aided design of the terminal in such a way as to minimize trapped sediments and in addition, SedCon water jet turbo sedimentation control units will be installed to further minimize shoaling in the berths and cut the need for regular maintenance dredging over the years, resulting in fewer riverbed disturbances. Fisheries biologists had been concerned about the impact of increased turbidity from the units on fish, but studies indicated that wide fluctuations in turbidity occur naturally in the river.

There was also concern about the impact of storm water runoff on water quality due to the facility's former use.

Testing indicated the presence of soil contamination, mostly from paint and chemicals that had been used to clean and service navy ships.

Various pre- and post-development models were used to assess pollutant runoff and to prevent leaching of contaminants into the river. The entire facility will be paved with asphalt, which will serve as an impermeable cap for contaminated soil. Drains will direct runoff to catch basins that will remove a significant portion of pollutants. No additional treatment will be necessary.

FINALLY...

In total, the \$830M project includes over \$10M in mitigation activities that were necessary to satisfy numerous constituencies.

It's wise to assume that future port projects of this size requiring a Corps permit will have to address practically every potential environmental impact. Success will require planning to avoid or minimize impacts; aggressive public outreach that addresses the concerns of interested parties as early as possible – and being ready to incorporate creative mitigation options into the plan.

[More info at www.scspace.com](http://www.scspace.com) + www.appliedtm.com

About The Author

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