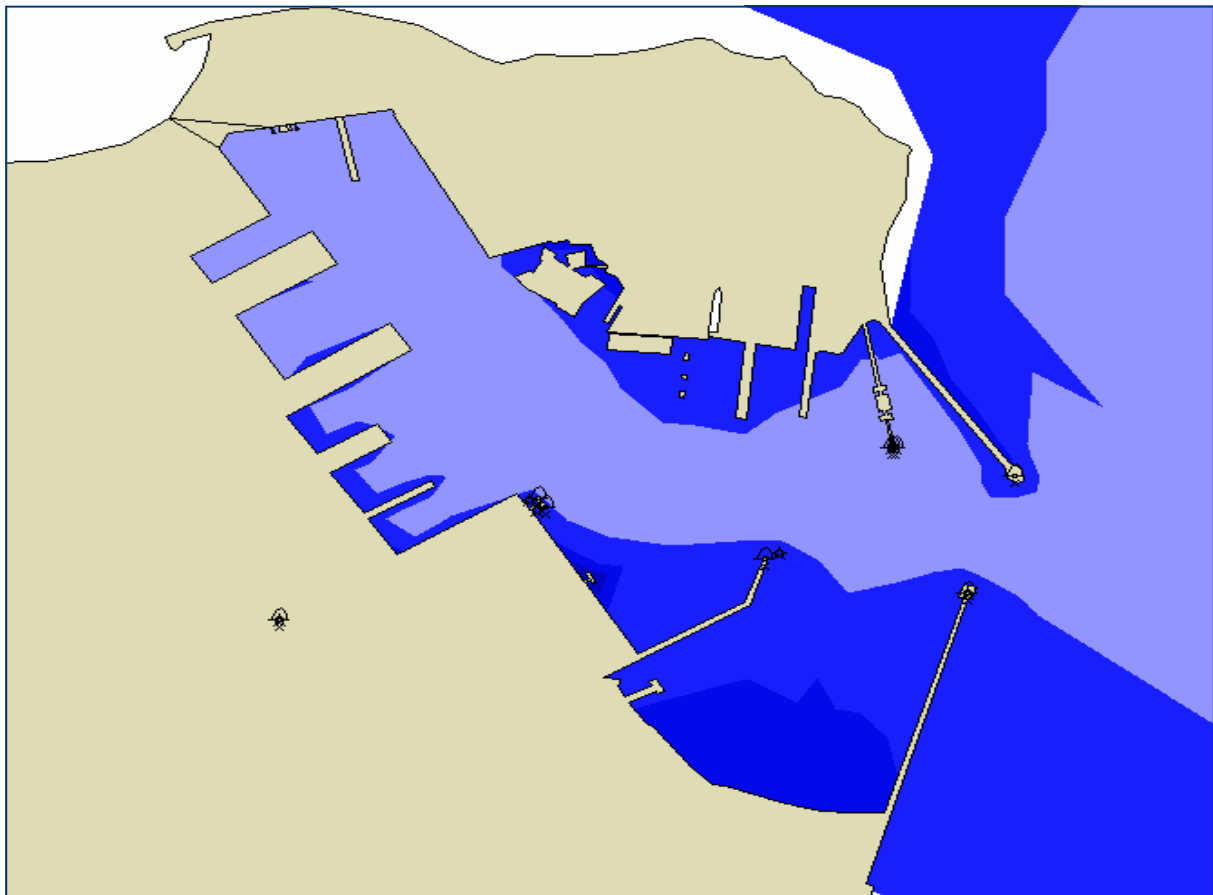


# Port of Veracruz, Mexico



*Veracruz is the most ancient port in Mexico and the main port entrance along the Gulf of Mexico coast*

## **Abstract**

As ships become larger the demand for berth facilities that can handle these large ships increases. In the case of Veracruz the problem is that it can be very difficult finding place for such new berths. This forces the harbour authorities to consider taking larger ships into the existing harbour. Consequently, this can introduce some risk elements, which have to be evaluated and considered in advance.

In this matter FORCE Technology was contacted by the authorities in Veracruz. The aim of the study was to train the Veracruz pilots in the harbour of Veracruz with relevant ships under extreme conditions of wind, waves and tide and at the same time verify the viability of the harbour. In addition, tug requirements were tested and evaluated.

## Operation Manual

One important outcome of the simulations was a matrix of recommended maritime operations in Veracruz harbour, i.e. an Operations Manual.

The manual contains recommendations on berth occupancy, restrictions, tug requirements and weather limits for the harbour and for the different ships tested in the simulator.

## Training and Verification

The layout of the harbour and the ships that in the future will call Veracruz harbour was checked during a number of simulations. The simulations covered a range of different weather conditions ranging from calm to severe in order to ensure that most possible scenarios were checked. Both arrivals and departures were checked along with the tug assistance required. To ensure that the environment was modelled correctly, a number of surveys from the harbour were put into the simulator along with studies of wind, waves and current.

## Collaboration

The successful outcome of the simulations was achieved due to a close collaboration with the port authorities, the pilots, the consultants and FORCE Technology, showing that simulations provide an excellent forum, not only for simulation, but also for discussions between the involved parties enhancing consensus on handling the new situation in the harbour.

## Conclusions

The outcome of the simulations was a number of recommendations that enable the harbour pilots to handle the new larger ships in the existing layout of Veracruz harbour with safety as outlined in the Operations Manual, and at the same time creating a mutual understanding among the involved parties.



*From the port system transformation, the Veracruz port has shown great advances in productivity and installed capacity*



*From 1994 to 1998, the cargo handled at the Port has increased from 8,000,000 to 13,000,000 tons*



Further information:

Peter K. Sørensen, tel. (direct) +45 72 15 78 62, pks@force.dk

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FORCE Technology Netherlands B.V.  
Tel. +31 71 523 5212  
FORCE Technology Rusland LLC  
Tel. +7(812) 326 80 92

FORCE Technology USA Inc.  
Tel. +1 713 975 8300  
FORCE Technology Brazil Ltda.  
Tel. +55 21 2610 7400

FORCE Technology Norway AS  
Claude Monets allé 5  
1338 Sandvika, Norway  
Tel. +47 64 00 35 00  
Fax +47 64 00 35 01  
info@forcetechnology.no  
www.forcetechnology.no

FORCE Technology Sweden AB  
Tallmätargatan 7  
721 34 Västerås, Sweden  
Tel. +46 (0)21 490 3000  
Fax +46 (0)21 490 3001  
info@forcetechnology.se  
www.forcetechnology.se

FORCE Technology  
Headquarters  
Park Allé 345  
2605 Brøndby, Denmark  
Tel. +45 43 26 70 00  
Fax +45 43 26 70 11  
force@force.dk  
www.forcetechnology.com