

Sounding of the harbor in Conakry, Guinea

Client: INROS Lackner SE

Location: Conakry, Guinea

Scope of work: Echo-sounding and generation of a digital elevation model (DEM) for the harbour, determination of volume of sediment deposits

Method: Eco-sounding with a single beam sonar and the QUINSY GPS system, DEM generation and determination of sediment volumes with AutoCAD Civil 3D

INTRODUCTION

To enhance the security and easiness of shipping traffic at the harbor of Conakry, a traffic security echo-sounding and the determination of sediment volumes which ought to be removed was necessary.

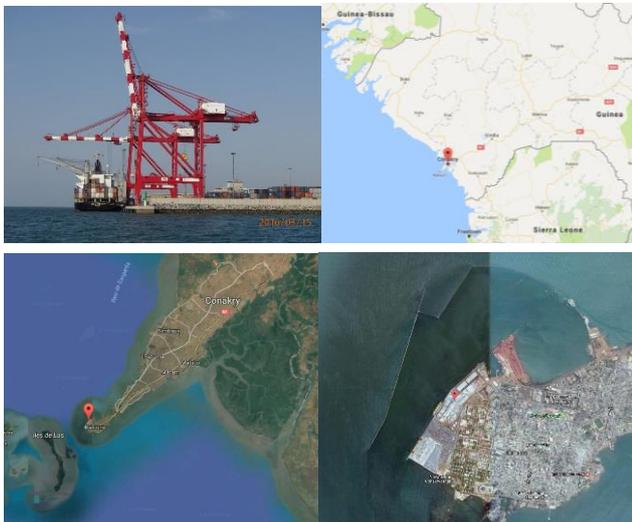


Fig. 1: View and location of the harbour Conakry, harbour inlet and inner harbour

METHOD

With single beam echo-sounding in combination with the QUINSY GPS system, the topography of the harbor floor was determined in high resolution. The reference service was SBAS (Satellite Based Augmentation System). DEM generation was executed in AutoCAD Civil 3D. Further, maps of the topography were developed and the difference between the actual and nominal condition was determined.

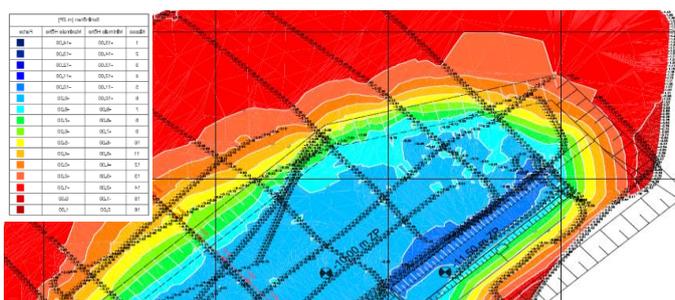


Fig. 2: Topography of the inner harbor and the location of the echo-sounding tracks

RESULTS

The difference maps clearly identified critical areas, which need to be dredged.

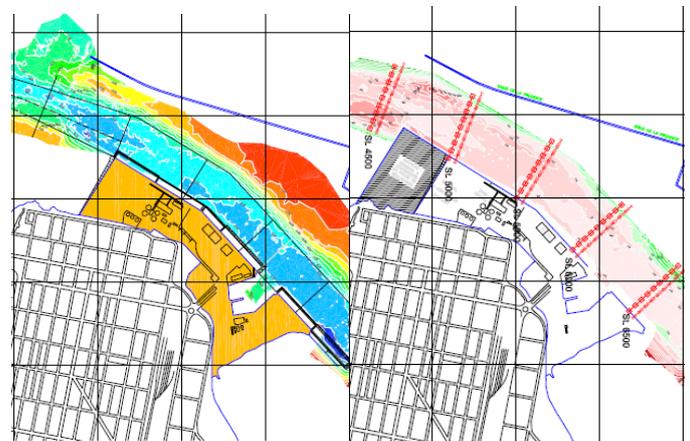


Fig. 3: Topography and difference between actual and nominal bed topography in the inner harbor

The echo-sounding could show, that the length of the wave-breaker is not sufficient to deflect the currents parallel to the coast and prevent the formation of eddies in the inner harbour. Due to these dynamics, new sediment deposits fill up the new container harbor continuously. This results in challenging entry and transposition manoeuvre especially for larger ships (mainly container ships). However, the outer entry area does not experience sedimentation due to the dynamic of natural currents.