

## SIMULATION OF DIFFERENT CONCEPTIONS OF JETTIES IN THE PORT OF SANTOS.

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### Abstract

The recent Port of Santos deepening of dredging, from 13 to 15 meters deep, has increased the maintenance dredging volume. In this sense, this study analyzes the influence of jetties in the currents velocities along Port of Santos access and navigation channel using hydrodynamic numerical modeling. In general, the velocity maps of each proposed jetty show an increase of currents's velocities at the mouth of the jetties.

### Key words:

Port of Santos, dredging, jetties.

### Introduction

Nowadays, Port of Santos, located in Brazil, is the largest in Latin America, having a fundamental influence on the country's economy, as it has been assuming the role of Hub Port. The port is undergoing a process of deepening of its access channel, predicting to reach 17 meters of deep as final target. Consequently, a considerable increase in the maintenance dredging volume is expected, as well as in the operational costs of port.

The objective of this study is simulating different options of jetties, proposed by ALFREDINI (2013) and REIS (1978), in order to evaluate the current's velocity variation along the access and navigation channel of Port of Santos.

### Results and Discussion

The jetties proposed by REIS (1978) and ALFREDINI (2013), shown in image 1, were simulated by means of hydrodynamic numerical modeling, using the software Mike 21. The comparison of current velocities in the access channel was carried out in a reference scenario without the jetty and in other six scenarios with the presence of jetties.

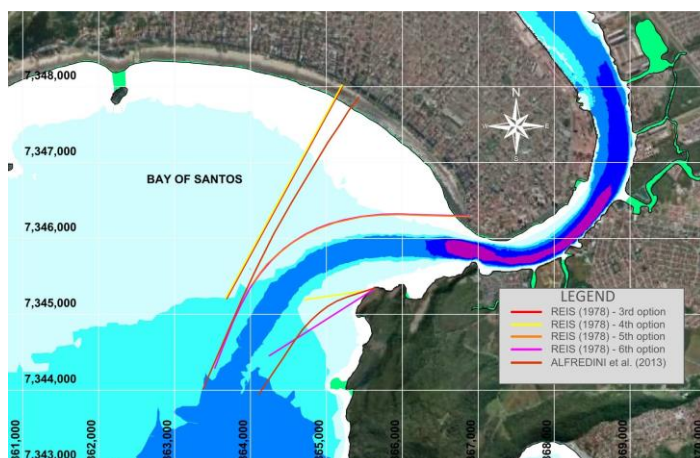


Image 1. Proposed of jetties for Port of Santos.

From image 2 it is possible confirm some conclusions obtained by REIS (1978), in which the 6<sup>th</sup> option consists of a curved part and a straight part showed positive results, regarding the increase of current's velocities in the channel, among the proposed options.

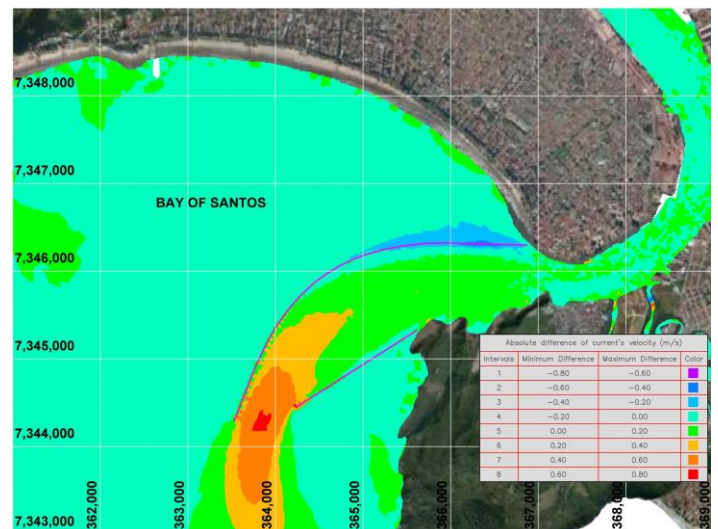


Image 2. Absolute difference of current's velocities in ebb with the 6<sup>th</sup> option.

### Conclusions

In general, the proposed jetties increase the current's velocity satisfactory.

The alternative studied here has shown promising results in terms of increase of current's velocities at the mouth of the jetties in the access channel.

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