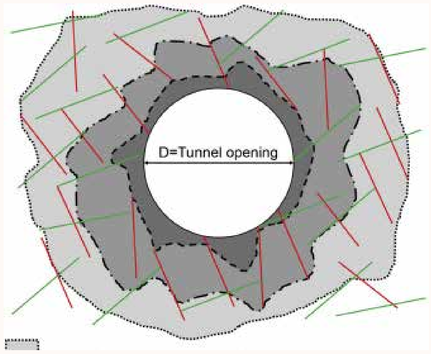
Rock Mass Grouting for Coastal Infrastructure

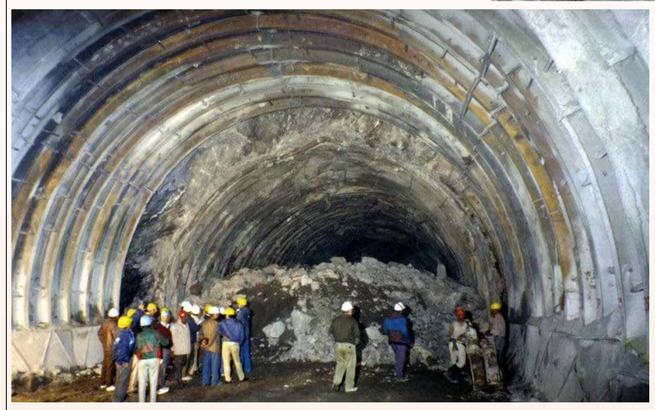
Matthew O. Sonibare, Oladoyin Kolawole

John A. Reif Jr. Department of Civil and Environmental Engineering, New Jersey Institute of Technology, (NJIT)

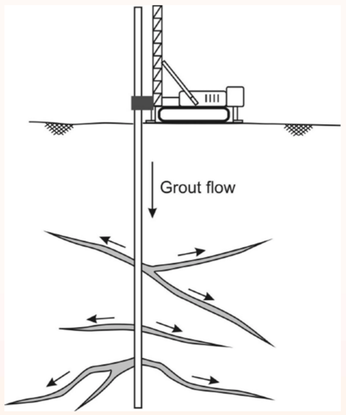
BACKGROUND AND MOTIVATION



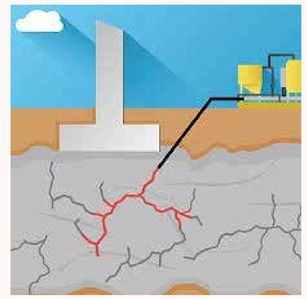
Problem ??



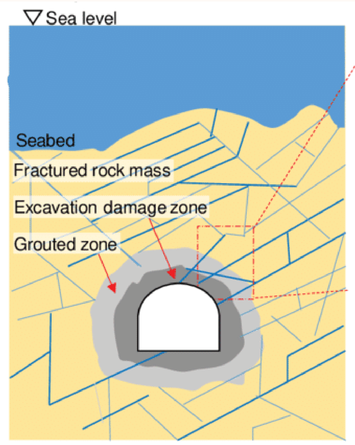
Rock grouting to fill cracks in rocks

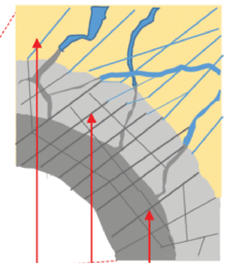


fluid is injected to fill cracks in rocks

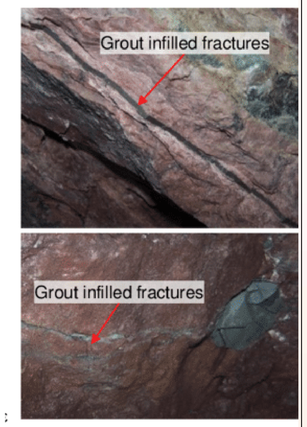


Interaction with saline water in coastal areas may have an impact on the efficiency of the grouting process

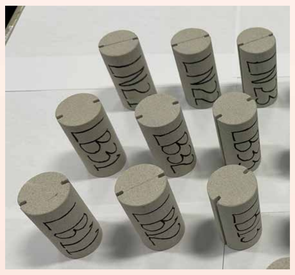




Grouting of rocks improves the strength and reduces the permeability of rocks

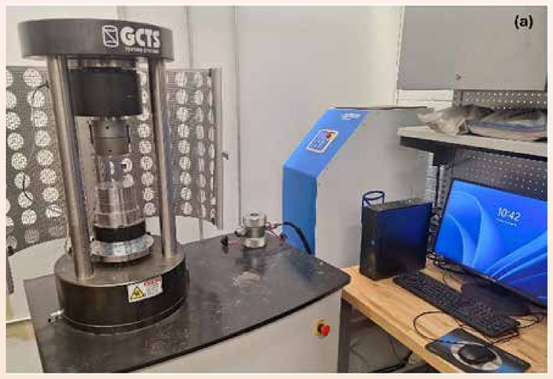


TESTING PROCEDURE



Fractures were induced on the transverse section of the rock core specimens

Grouted rocks were immersed in saltwater and freshwater for 45 days

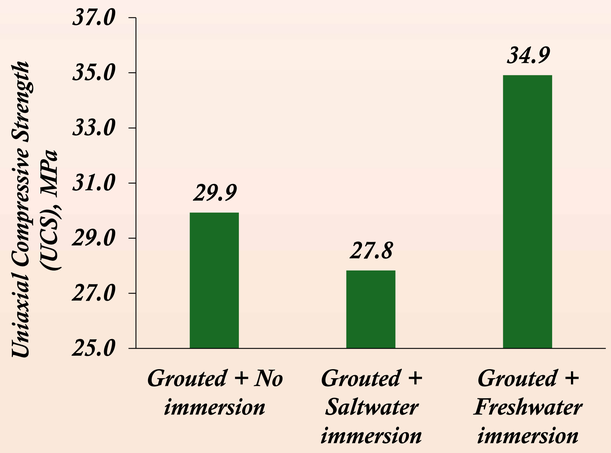


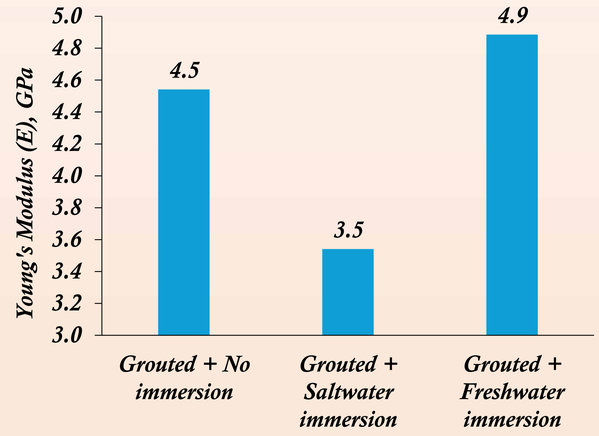
Uniaxial compression test is carried out to determine the rock properties

The fractured rocks were grouted

The mechanical properties of grouted rocks with interaction with saltwater and freshwater were determnied

RESULTS AND CONCLUSIONS





- Interaction with saltwater reduces grouting efficiency in fractured rocks
- Interaction with freshwater increases grouting efficiency in fractured rocks