

Geotechnical Behaviour of Embedded Anchor Chains

Research Problem

It is unclear how the inclination and tension of embedded anchor chains affects the holding capacity of anchors and how the chains contribute to the reliability of the mooring system, when the offshore floating facility suffered complex environmental loads.

Research Objective

The aim of this research is to investigate the performance of embedded anchor chains in clay in three-dimensional space, and develop a versatile program for effectively implementing three-dimensional (3D) chain analysis.

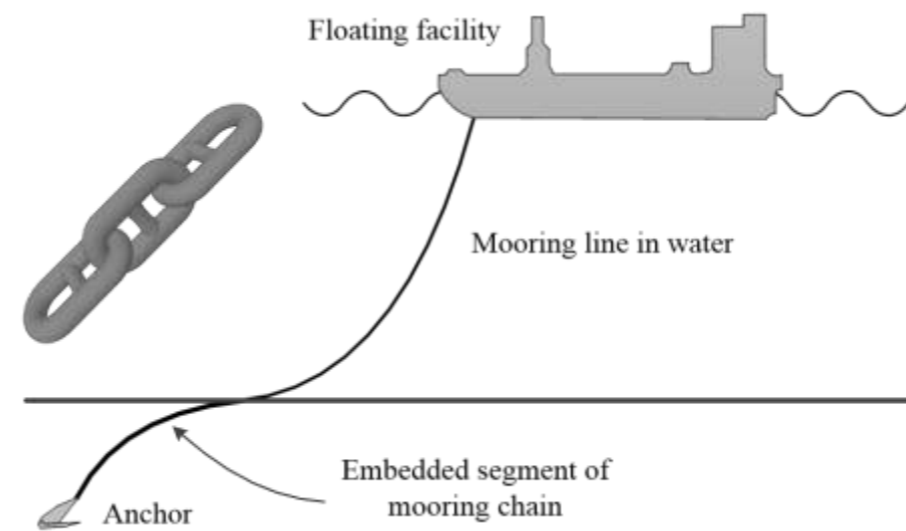


Fig. 1. Mooring system and embedded chain

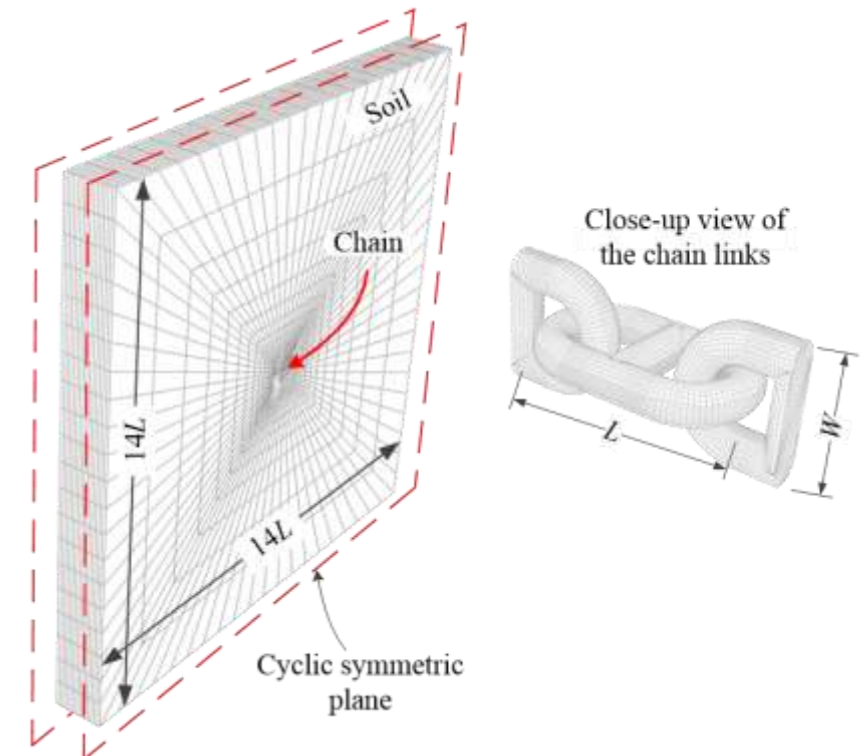


Fig. 2. Finite element model of chain links

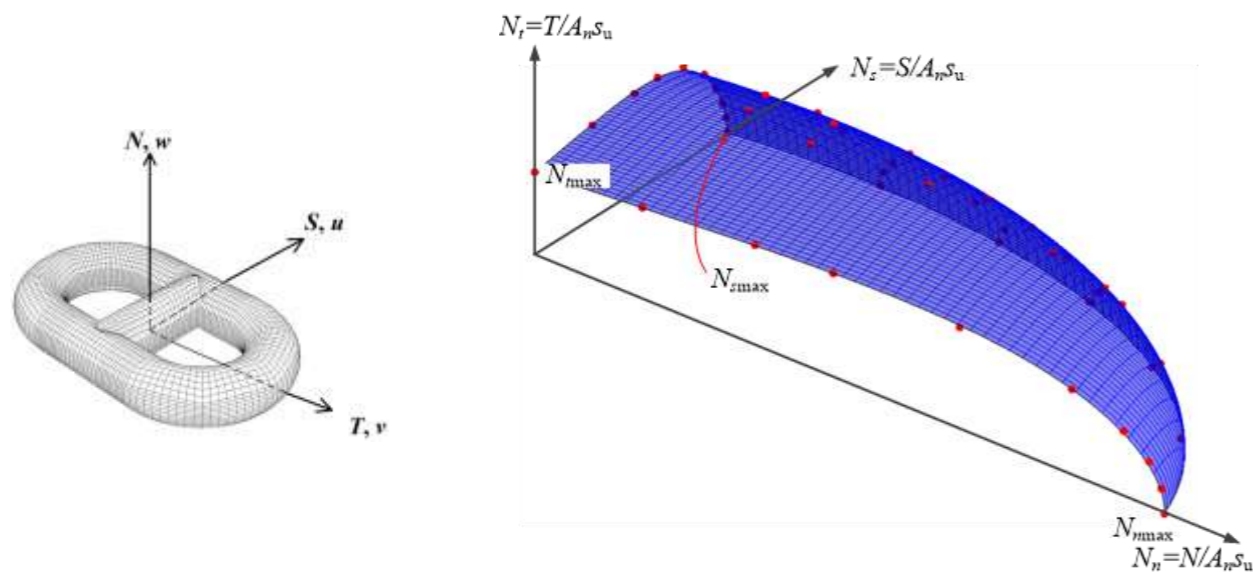


Fig. 3. Yield surface of soil resistance to one chain link

Methodology

1. The finite element numerical analysis is implemented to investigate the soil resistance to one chain link in clay in 3D space.
2. The behaviour of the whole mooring line is studied by developing a macro-element program.
3. This research will develop a strength degradation model of soil under cyclic loading in 3D space, and incorporate the model to the program.

More Information

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