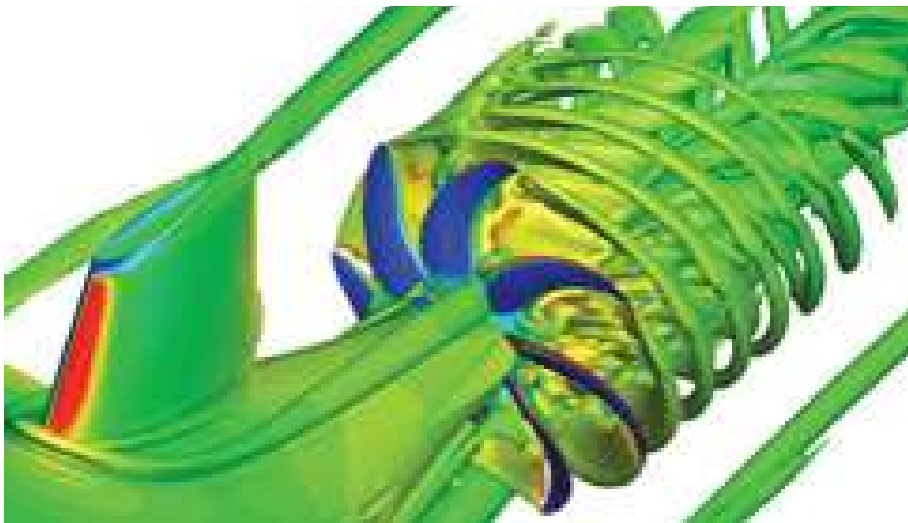# COLUMBIA CLASS SUBMARINE CRASHBACK MODELING

Success Story - Navy

Navy use of HPCMP CREATE-SH NAVYFOAM Software to virtually test submarine propeller under crashback conditions.

⚠ PROBLEM

The crashback maneuver is an emergency procedure from full speed ahead to stop. This situation generates extreme loads on the propulsor blades. A failure would place the ship out of service.

SOLUTION

A complex suite of computational tools provided predictions for peak loading early in the propulsor design cycle to ensure a robust design and reduce the risk of failure.

Multiple classified HPC simulations are being conducted to support the down-select and maintain acquisition timeline.

☑ IMPACT

The Navy, utilizing HPCMP capabilities, is reducing the acquisition risk.

HPC provides a means to accurately simulate propulsor designs in a timely manner. HPC physics-based modeling reduced the risk of blade and mission failure.