

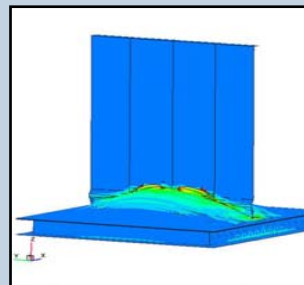
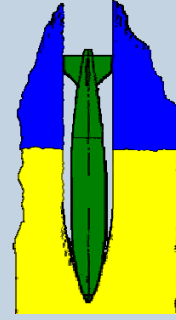
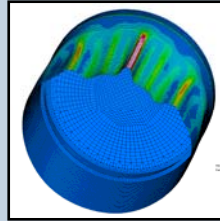
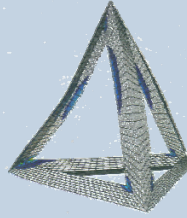


## AREAS OF CONCENTRATION

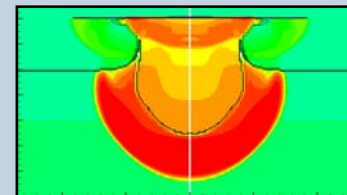
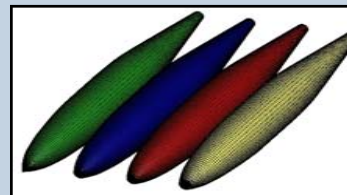
- ◆ Explosive Effects and Target Vulnerability
- ◆ Shock Physics
- ◆ Aero-Hydro Ballistics/ Supercavitation
- ◆ Structures/Mechanisms Dynamic Response
- ◆ Mines and Mine Countermeasures
- ◆ Underwater Weapon Design
- ◆ Advanced ASW Warheads
- ◆ Gun and Munition Design
- ◆ Reliability, Safety, and Effectiveness Studies
- ◆ Test Planning/ Direction and Data Analysis

## ANALYSIS TOOLS

- ◆ DYNA3D and ANSYS Static and Dynamic Response
- ◆ DYSMAS, Advanced Coupled Eulerian/ Lagrangian
- ◆ CTH Eulerian Hydrocode
- ◆ 72 Processor Computer Cluster
- ◆ HPC Access
- ◆ SolidWorks
- ◆ Femap



$$P = \int k \left( \frac{W}{R} \right)^{\frac{1}{3}} \alpha$$

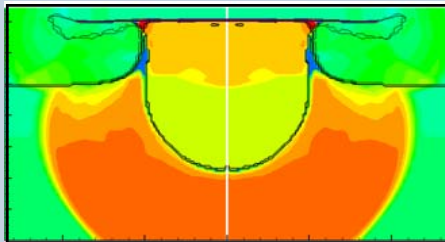
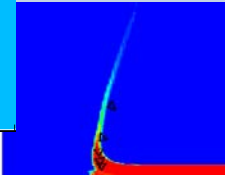
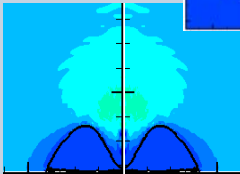
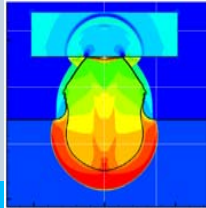
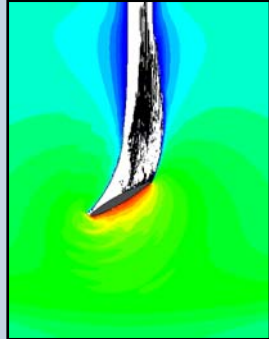


## THE STAFF

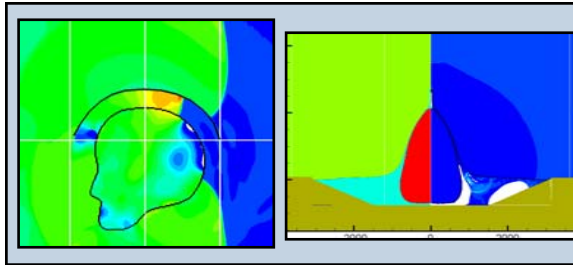
- ◆ **Dr. Jacques E. Goeller**, Chief Scientist, is a recognized national and international expert in the design and analysis of ordnance systems with specific expertise in systems engineering, aero-hydro ballistics, shock physics, structural analysis, warhead design and lethality assessment of weapons. He holds a BS, MS, and Ph.D. in Mechanical Engineering. He has fifty years of experience working in the design and analysis of surface launched and underwater weapon systems, and is Co-holder of the patent on the 30 mm Hydroballistic Armor Piercing Discarding Sabot (HAPDS) projectile used in the Rapid Airborne Mine Neutralization System (RAMICS) currently under acquisition development.
- ◆ **Dr. Andrew Wardlaw**, Principal Engineer, has 35 years experience at NSWC, specializing in CFD/hydrocode development and aerodynamics testing. He has developed widely used software such as ENTRY (water impact loads), ZEUS (missile aerodynamics) and GEMINI/ DYSMAS (UNDEX ship damage assessment). Andrew is the author of numerous journal articles and technical reports and holds a BS, MS and Ph.D. in Mechanical Engineering as well as a Masters degree in computer science from Johns Hopkins University.
- ◆ The Modeling and Simulation Group also employ a variety of highly qualified engineers who vary in background and possess unique qualifications. Collaboratively, they combine their different expertise to provide quality modeling and simulation services.



## SAMPLE ANALYSIS DISPLAYS



## MODELING AND SIMULATION GROUP



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