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February 26, 2010

Building The Future Force – Naval Science and Technology

"Naval science and technology is focused on improving the life of the warfighter, from high-end sensors, weapons and systems, to improvements in maintenance, automation, personnel protection and cost reduction."

– Rear Adm. Nevin Carr, Chief of Naval Research

Future warfighters will operate a Navy that is safer, lighter, faster, stealthier, and more affordable, lethal, energy efficient and autonomous than today's forces. The roadmap to support future forces through technology investments is contained within the Naval Science and Technology (S&T) Strategic Plan. This plan directly supports the CNO Guidance for 2010: Executing the Maritime Strategy which directs the Navy to actively leverage the body of S&T to provide Sailors and Marines with a warfighting edge and to sustain that edge into the future.

Bringing Ideas Together

- Building future capabilities demands disciplined S&T investments and the focused efforts of some of the world's top scientists, brightest engineers and the very best in government, academia and private industry across what is known as the Naval Research Enterprise.
- The Naval Research Enterprise consists of organizations from the Naval Warfare and Systems Centers, Federally Funded Research and Development Centers, University Affiliated Research Centers, colleges, innovative businesses and industry labs.

Pipeline of Innovation

- The Office of Naval Research (ONR), the Naval Research Laboratory and ONR Global work together and across the Naval Research Enterprise to execute the Naval S&T Strategic Plan and provide innovative future capabilities to warfighters.
- A significant percentage of work is dedicated to basic or long-term research. Near- and mid-term needs of the Navy are addressed through Innovative Naval Prototypes, Future Naval Capabilities and Quick Reaction S&T.
- The S&T investment portfolio aims to solve some of the Navy's most vexing technological challenges in marquee S&T programs such as: Electromagnetic Railgun, Free Electron Laser, Integrated Topside, Tactical Satellites, Intelligent Autonomy, Power and Energy, Immersive Training and Total Ownership Cost reduction.

Successful Transitions

Partnership and collaboration throughout the Naval Research Enterprise make possible the scientific discoveries and maturation of technology that transition to the warfighter. Some recent successful transitions include:

- Autonomous Mine Counter Measures – Networked autonomous underwater search vehicles improve mine detection, classification and neutralization, reducing risk to personnel and ships operating in the littorals.
- Sonar Technology – New automation algorithms improve submarine detection in cluttered environments, reduce sonar operator workload and increase operator proficiency.
- Aviation Electronic Warfare – New S&T innovations deliver low-cost, auto-response missile warning capability and jamming for laser threats.
- Corrosion Control – Rapid cure, single coatings for ship tanks and voids reduce total ownership cost by extending the service life up to 40 years, thereby reducing maintenance and manpower.

Key Messages

- Naval S&T investments provide technological advantage for present and future warfighters.
- Driving down total ownership cost underpins all Navy S&T programs.
- Investment in basic research advances the Science, Technology, Engineering and Math (S.T.E.M.) base.

Facts & Figures

- In fiscal year 2010, the Navy will invest about $2 billion in S&T to benefit future warfighters.
- The Naval Research Enterprise has a presence in all 50 states and 70 countries worldwide.
- 47 Future Naval Capabilities products have transitioned to acquisition and are on-track for delivery with an additional 158 Future Naval Capabilities projects underway.