

UNCLASSIFIED

FY 2008/2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET
Exhibit R-2

DATE: February 2007

BUDGET ACTIVITY: 07
PROGRAM ELEMENT: 0205658N
PROGRAM ELEMENT TITLE: NAVAL SCIENCE ADVISOR PROGRAM

COST: (Dollars in Thousands)

Project Number & Title	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total PE	5,609	3,363	3,473	3,608	3,761	3,827	3,857	3,881
0834 LABORATORY FLEET SUPPORT	5,609	3,363	3,473	3,608	3,761	3,827	3,857	3,881

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Naval Science Advisor Program ensures that the Fleet/Force (F/F) helps shape the Department of the Navy (DoN) investment in Science and Technology (S&T), develops teaming relationships to rapidly demonstrate and transition technology, supports development of technology-based capability options for naval forces, and enables warfighting innovations based on technical and conceptual possibilities. This is accomplished through proactive connectivity and collaboration between DoN S&T and Joint, Navy, and Marine Corps commands worldwide. The program accomplishes this through several methods. It provides Science Advisors to Joint, Navy, and Marine Corps operational and strategic planning commands. Science Advisors facilitate and disseminate Joint Capabilities Integration and Development System (JCIDS) requirements provided by the F/F Commanders to the Director of Navy Test and Evaluation and Technology Requirements (OPNAV N091). Science Advisors collaborate with the F/F to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. As a result, Science Advisors provide insight into issues associated with Naval Warfighting Capabilities that influence S&T program decision making. The program develops leaders among civilian scientists and engineers in the Naval Research Enterprise (NRE). Upon completion of their tours, Science Advisors return to the NRE with first hand knowledge of the F/F, warfighting issues, and strategic decision making. The Naval Science Advisor Program enables continuous communication and collaboration between the warfighters, the technical community, and strategic development commands.

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B. PROGRAM CHANGE SUMMARY:

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY 2007 President's Budget Submission	3,858	3,376	3,496	3,661
Congressional Adjustments	3	-13	0	0
Execution Adjustments	1,748	0	0	0
Non-Pay Inflation Adjustments	0	0	-28	19
Program Adjustments	0	0	19	26
Program Realignment	0	0	-40	-124
Rate Adjustments	0	0	26	26
FY 2008/FY 2009 President's Budget Submission	5,609	3,363	3,473	3,608

PROGRAM CHANGE SUMMARY EXPLANATION:

Technical: FY 2006 program funded 24 Science Advisors. For FY 2007 and out, the program is funded for 24 Science Advisors. Changes from 2006 include: Joint Interagency Task Force-South assuming full responsibility for one Science Advisor billet; Naval Special Warfare Command eliminated the Science Advisor position; a new billet is being established to work with the Deputy Chief of Naval Operations for Communications Networks (OPNAV N6).

Schedule: Not applicable.

C. OTHER PROGRAM FUNDING SUMMARY:

Not applicable.

D. ACQUISITION STRATEGY:

Not applicable.

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E. PERFORMANCE METRICS:

Goal: Provide leadership with timely S&T advice on issues.

Metric: Monthly reports by Science Advisors to the Office of Naval Research and senior leadership within their assigned commands.

Goal: Provide the optimum technological solutions to achieve Fleet/Force capability requirements.

Metric: Number of capability gaps reduced to technology gaps.

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PROGRAM ELEMENT TITLE: NAVAL SCIENCE ADVISOR PROGRAM

PROJECT TITLE: LABORATORY FLEET SUPPORT

COST: (Dollars in Thousands)

Project Number & Title	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
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B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2006	FY 2007	FY 2008	FY 2009
NAVAL SCIENCE ADVISOR PROGRAM	5,609	3,363	3,473	3,608

Changes to reflect FMB Controls

FY 2006 Accomplishments:

The Science Advisors are a conduit between the Fleet/Force, the Office of Naval Research (ONR) and the NRE: Specific Fleet Accomplishments were:

- Science Advisor, Commander Seventh Fleet (COMSEVENTHFLT) (C7F), continued active support for discreet elements of the U.S. Pacific Command (PACOM) Pacific Air Study by pursuing CLASSIFIED joint technological CLASSIFIED Joint Force Maritime Component Commander (JFMCC) vulnerability study supported by the NRE. To date, JFMCC experimentation has involved three Carrier Strike Groups and one Expeditionary Strike Group. Elements of this JFMCC vulnerability study were defined under Naval Warfare and Doctrine Command Tactical Development and Evaluation Project 07-15.
- Science Advisor, Commander Fleet Forces Command (CFFC), increased Fleet inputs into the Future Naval Capabilities (FNCs), Rapid Technology Transition (RTT), and Joint Concept Technology Demonstration (JCTD) S&T programs. Coordinated and led scientist and engineers from the Naval Research Laboratory (NRL)/ONR, Office of the Chief of Naval Operations (OPNAV), United States Air Force (USAF) on familiarization tours of Navy ships, aircrafts, and landing craft. Collected data, surveyed F/F leadership and warfighters to justify the extension of the lease of the Joint High Speed Vessel (JHSV-2) Advanced Concept Technology Demonstrations (ACTD) Operational Management Team establish and execute Military Utility Assessment (MUAs) in order to capture the warfighter value of the ONR funded project. Shaped briefs, refined products, and recommended decisions to the Sea Trial Executive Steering Group (STESG) and Technical Oversight Group (TOG) through the Federal Networking Council and Sea Trial Exercise Plan (EXPLAN) processes.

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- Science Advisor, Joint Forces Command (JFCOM), supported development and exercise of Maritime Headquarters/Maritime Operations Center (MHQ/MOC) concept in the Navy's Trident Warrior Exercise by leveraging United States Joint Forces Command (USJFCOM) Joint Innovation and Experimentation Division's National civilian and foreign military engagement with the Second Fleet, Naval Net Warfare Command and North Atlantic Treaty Organization (NATO). Supported selection and fielding of technologies to improve efficiency and accuracy of the United States Marine Corps (USMC) personnel reporting and tactics through involvement of Program Reservists in an Urban Environment Exercise (TRUEX). Science Advisors facilitated engagements with various OSD, joint, service and foreign commands in order to identify areas of programs to improve Net Centric Warfare capabilities.
- Science Advisor, Commander U. S. Naval Forces Central Command (COMUSNAVCENT), developed and socialized COMUSNAVCENT Technology gaps. Science Advisor's worked with portable detector initiatives across programmatic, laboratory, and field fronts, while performing hands-on utility assessment, operational technology insertion at sea, and initiating RDT&E efforts to improve the detector under the ONR's Tech Solutions program. Initiated Urgent Need Statements (URNS) for a surveillance aerostat system, portable machine translators, and interdiction Unmanned Surface Vehicle (SUV), and portable chemical, biological, radiological, nuclear, and high yield explosives/Weapons of Mass Destruction (CBRNE/WMD) detector. Worked across the technical and programmatic lines to research and select commercially available technologies for rapid insertion into COMUSNAVCENT operations, including an at-sea tethered aerostat surveillance system and an armed USV for mobilization staff officer (MSO) interdiction.
- Science Advisor, Commander Submarine Forces Atlantic Fleet (COMSUBLANT), provided wide-ranging support to the COMSUBLANT staff on S&T issues. Completed the Submarine Technology Report for Congress. Led the Threat cell of the Unmanned Vehicle Command and Control Study tabletop war game. Evolved an engagement strategy with ONR and other S&T organizations for technology management to include a Future Capability Matrix (FCM) and Future Capability Measures of Performance (MOPs) tools.
- Science Advisor, Commander Naval Surface Forces Pacific Fleet (COMNAVSURFPAC), participated in SPARTAN (an Unmanned Surface Vehicle) Military Utility Assessment testing at Camp Pendleton. Managed the Scientist-to-Sea Program. Coordinated NAVSURFPAC activities with the Surface Ship Technology (SURFTEC) organization.

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- Science Advisor, Commander Third Fleet (COMTHIRDFLT) (C3F), coordinated and conducted an ONR sponsored Antisubmarine Warfare (ASW) Command and Control (C2) Limited Objective Experiment at C3F Maritime Operations Center. Investigated, submitted, and coordinated approval of ONR Tech Solutions project 802.11 device locating and monitoring system. Coordinated, planned, and conducted SPARTAN (an Unmanned Surface Vehicle) Advanced Concept Technology Demonstration program development for C3F. Established C3F as the Operational Manager for the Joint Multi-Mission ElectroOptic System (JMMES) Joint Technology Capability Demonstration (JCTD), a new FY'07 JCTD start. Coordinated C3F Sea Trial/Sea Shield Experimentation.
- Science Advisor, Commander Sixth Fleet (COMSIXTHFLT) (C6F)/Commander Naval Forces Europe (CNE), worked on further developing Maritime Security within the C6F Area of Responsibility (AOR). Worked with the Regional Maritime Awareness Capability (RMAC) Joint Capability Technology Demonstration (JCTD) team to obtain support and resources for the planning, and execution of RMAC. Helped establish the CNE-C6F Knowledge Management Director as RMAC Operational Manager, and assisted in obtaining detailees to serve on the CNE-C6F RMAC team. Worked to establish a broad interministerial base of participation, rather than strictly working in the military-to-military domain, to support engagement activities in the Gulf of Guinea, the Caspian Sea and the Black Sea. Led the RMAC team to São Tomé and Príncipe (STP) to obtain support of the STP government and civil sectors. Continued further develop of a Maritime Domain Awareness network and tools to support vessel traffic analysis. Served as the United States European Command (EUCOM) Co-Operational Manager for the Comprehensive Maritime Awareness (CMA) JCTD. Participated in the development of the Implementation Directive, Management Plan, and selection of an Operational Test Agent. Led an effort to embed Fast Connectivity for Coalitions and Agents Project (FastC2AP) into the CMA Advanced Concept Technology Demonstrations (ACTD), and defined the role of CMA in CNE-C6F Maritime Security and Safety programs. Provided technical oversight for the successful introduction and evaluation of FastC2AP into CNE-C6F and North Atlantic Treaty Organization (NATO) Component Commander, Maritime (CCMAR) operations. Served as the Predictive Analysis for Naval Deployment Activities (PANDA) link between CNE-C6F and PANDA Program Management to have CNE-C6F included among the sites at which PANDA will be deployed, bringing tremendous analysis capabilities to Maritime Security and Safety efforts. Organized the Maritime Security and Safety Information System (MSSIS) concept. MSSIS is the realization of a "multilateral, unclassified, freely-shared data network", which enables information sharing among enduring and emerging partners, and creates the foundation for control of maritime spaces. Successfully advocated and participated in the development of the Merchant Vessel Inspection Guide (MVIIG) concept to Technical Support Working Group (TSWG), ensuring that it was NATO-releasable in support of Operation Active Endeavor (NATO Maritime Interdiction Operations in the Mediterranean). Actively supported CNE-C6F Theater Security Cooperation (TSC) programs in the Gulf of Guinea. These activities included follow-up to the December 2005

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S&T trip made to Nigeria and Cameroon, Maritime Security Strategy work in Ghana, participation in the Maritime Security in the Gulf of Guinea Ministerial Workshop in Benin, and obtaining support for RMAC in São Tomé and Príncipe from the heads of the STP government, military, and civilian sectors. Participated in the formulation of CNE and EUCOM strategies for Global War on Terror (GWOT) Phase 0 operations, and in defining the naval role in accordance with the National Strategy for Maritime Security. Participated in the development and certification of the Joint Task Force/Joint Force Maritime Component Commander (JTF/JFMCC) Headquarters. Joint Task Force Lebanon was the JTF final certification event. JTF Lebanon was a real-world event that transpired in August and September of 2006 to plan for, and be prepared to evacuate America embassy personnel from Beirut, to assist in the delivery of humanitarian assistance during the period that Israel enforced a naval blockade, and to plan for and be prepared to evacuate non-combatant personnel from Lebanon. Successfully identified and accredited desktop/LAN search engines for installation on all NIPR and SIPR stations at CNE-C6F. These two accomplishments represent a breakthrough in CNE-C6F Knowledge Management capabilities.

- Science Advisor, Commanding General 1st Marine Expeditionary Force (CG I MEF), established a requirement for and fielded a number of Operations Analysts within the Assessments branch of the MEF (FWD i.e., in Iraq) to help assess every mission/project thread. Developed the Escalation of Force analysis and reporting process with MEF (FWD). This process continues to be held monthly (by Office of the Appellate Defender (OAD) at Marine Corps Combat Development Command (MCCDC) and is presented at each Commander's Conference. Researched the viability of Mine-Resistant-Armor-Protected (MRAP) vehicles for the USMC in support of their Counter Improvised Explosive Device (IED) efforts. As a result of this research, an Urgent Universal Need Statement (UUNS) and Joint Universal Operational Need Statement (JUONS) were submitted. The Marine Corps Systems Command released a contract for these vehicles.

- Science Advisor, Chief of Naval Operations (CNO) Strategic Studies Group (SSG) facilitated broad technical exchanges among a variety of organizations and the SSG. Proactively identified potential sources of information sought by the Group's Concept Teams (CTs) and played an important role in the development of the Introductory Program by SSG. Established and expanded direct links with a broad spectrum of scientific, academic, and industrial organizations across the nation so that the SSG could benefit from an understanding of their endeavors as they might apply to naval warfare. Aggressively expanded the professional networks of the SSG, allowing the Group to engage with nationally-recognized experts in the generation of concepts for SSG XXV. Oversaw the planning and nationwide travel of four SSG teams to explore commercial, academic, and defense state of the art technology and processes.

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- Science Advisor, Joint Interagency Task Force (JIATF)-South, attended various operational evaluation working meetings. Participated in two Global Hawk Counterdrug demonstration flights for Target Boat Testing/Training. Briefed the Air Combat Command on the Contingency Aerostat Surveillance System (CASS). JIATF-South has assumed total responsibility for this position. ONR will continue to coordinate closely with JIATF-South on issues of mutual concern.
- Science Advisor, Commander, U.S. Marine Corps, Atlantic (COMMARFORLANT), supported establishment of a Foreign Language and Culture Program (FLCP). Updated MARFORCOM staff on status of current Voice Response Translator (VRTs), Phraselators, Iraqi Tactical Language Training System (TLTS), and Joint Forces Command (JFCOM) Language Translation initiatives. Collaborated with the II Marine Expeditionary Force (IIMEF) Science Advisor in the demonstration, evaluation, training, and fielding of VRTs and other language tools. Coordinated the delivery of 50 Phraselators and training support in support of II MEF units through JFCOM's Machine Foreign Language Translation program. Began coordination with MARFORPAC's Experimentation Cell (MEC) for training support during Mojave Viper at Twentynine Palms. Participated in the Joint Improvised Explosive Devise Defeat Office (JIEDDO) working group in order to assist in the identification of intelligence sources, potential software packages, social behavior models, and prediction algorithms. Coordinated delivery of Improvised Explosive Device Kwikpoint cards for 24th MEU. Assisted in the development of the USMC strategy for the acquisition of relevant core Non Lethal capabilities which support Irregular Warfare while providing the Marine Air-Ground Task Force (MAGTF) a flexible response to peace enforcement, stability and humanitarian relief operations.
- Science Advisor, Commander Naval Air Systems Command (COMNAVAIRSYSCOM), improved Flight Deck Communications System (IFCS). Initiated the design and development of an improved Acoustic Hailing Device for use as an Anti-terrorism/Force Protection (AT/FP) communications, warning/non-lethal deterrent and close-in surveillance device onboard Navy Ships (CANS). Initiated and managed several Tech Solutions programs to include CVN Surveillance System and CVN Underwater Hull Search Vehicle. Identified opportunities for senior scientists and engineers to get out to sea on CVN's and observe Fleet operations.
- Science Advisor, Chief of Naval Operations (CNO) Executive Panel (CEP), supported the CEP Near Term Assessment Study with emphasis on technology issues. Worked with the Office of the Secretary of Defense (OSD) Policy sub-groups on technology issues. Initiated the CNO directed Innovation and Technology Transition Subcommittee.

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- Science Advisor, Commanding General 2nd Marine Expeditionary Force (CG II MEF) continued working Improvised Explosive Devise (IED), Force Protection, Intelligence Surveillance Reconnaissance (ISR), Command and Control (C2), and Language Translation issues for MEF.
- Science Advisor, Commander, U.S. Marine Corps, Pacific (COMMARFORPAC), developed a successful proof of concept for the visualization tools and techniques needed for effective battle management and decision making at higher echelons of command, and demonstrated them to the Marine Corps requirements and acquisition commands. Worked on several critical Science and Technology (S&T) issues related to the Department of Defense (DoD) response in the United States Pacific Command (PACOM) to a pandemic outbreak of influenza. Conducted successful demonstration of cooling gloves, which have potential to reduce a Marine's core body temperature under high heat conditions.
- Science Advisor, Commander Pacific Fleet (COMPACFLT), focused efforts on Anti-submarine Warfare (ASW). Continued as a member of Task Force ASW and interacted heavily with the leadership of the Littoral ASW FNC. Coordinated the development of an ASW technologies assessment in support of Pacific Fleet Science and Technology requirements to support Pacific Area of Responsibility (AOR) wartime contingency plans. Worked on ASW search improvements and a thrust for automated marine mammal localization to mitigate possible interaction.
- Science Advisor, Naval Supply Systems Command (NAVSUP), completed demonstration of Machinery Health Monitoring/Sense and Respond Logistics (S&RL) application on an afloat platform (DDG) that connects condition based maintenance sensors to legacy maintenance and supply systems. Received fleet approval for funding of Modified Atmosphere Packaging System (MAPS) to extend shelf life for Fresh Fruits and Vegetables (FFV). Managed Navy Logistics Program (NLP) projects to include, Collaborative Logistics Program (CLP), Aviation Pack-up Kits (A-PUK), and Lead Free Solder. Managed NAVSUP's Small Business Innovation Research (SBIR) projects. Working with ONR on Sea-basing FNC EC for S&RL. Served as member of Virtual SYSCOM (VS) Systems Engineering working group. This working group completed an overhaul of VS Technical Authority policy. Working collaboratively with Navy Automated Identification Technology (AIT) Office to enable and expand use of AIT applications.

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- Science Advisor, Navy Warfare Development Center (NWDC), worked on the initial technical feasibility of the concept to use standard U.S. Army obscurants for U.S. Navy ship self-defense. Participated in a series of Maritime Headquarters with Marine Operations Center (MHQ w/MOC) events including the Command Third Fleet (C3F) sponsored Joint Force Maritime Component Commander (JFMCC) Tactical Memorandum (TACMEMO) Workshops and the Naval Warfare College (NWC) sponsored Maritime Security Workshop. Leading investigations into new and emerging technologies that could potentially support offshore infrastructure protection.
- Science Advisor, Naval Criminal Investigation Service/OPNAV (NCIS/N34), created the Navy Anti-Terrorism/Force Protection (AT/FP) requirements Technical Advisory Group (NAFTAG). Created a new RDT&E program entitled "Forensic/Biometric Equipment and Technology Demonstration". Created a new program to evaluate the anti-compromise aspect of Department of Defense (DoD) security/anti-terrorism/force protection technologies/prototypes. Appointed to the Naval Operations Staff (OPNAV) as the Lead for BioMetrics. Participated as the Navy representative in the Joint Service Biometric Quick Turn Capabilities Based Assessment (CBA) to identify urgent warfighting gaps and technical solutions in support of deployed forces.
- Science Advisor, U. S. Pacific Command (USPACOM), participated in counter-Improvised Explosive Device systems installation in Operation Iraqi Freedom (OIF) with the Naval Explosive Ordnance Disposal Technology Division. Coordinated ACTD efforts in the PACOM AOR. Participated in annual staff talks with Singapore. Coordinated Joint Coalition Maritime Awareness (CMA) efforts in the Pacific.
- Science Advisor, Commander Submarine Forces Pacific Fleet (COMSUBPAC), identified and provided engineering recommendations for fleet initiatives to optimize navigational communications capability for submarines operating in a surfaced condition. Worked with ONR's Tech Solutions Program to conduct an evaluation of how to make a submarine on the surface more visible to shipboard radars, and deliver an improved Submarine Radar Reflector prototype for the purpose of collision avoidance. Researched and provided technical assistance in the area of Ring Laser Gyro Navigation. Subsequent research and technical interaction resulted in the generation of an agreement between COMSUBPAC and the In-Service Engineering Agent (ISEA) to conduct periodic system hard drive analysis. Involved in development of solutions for communications at speed and depth that support war plan requirements. Provided guidance to the Submarine Force concerning the configuration and use of Digital Selective Calling (DSC). Due to the potential of undesired radio emissions, DSC employment became a high priority technical issue to be addressed throughout the Submarine Force.

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- Science Advisor, Commander Special Warfare Command (COMNAVSPECWAR), coordinated the fielding of an optics detection system to assist the SEALs. Reviewed the Naval Surface Warfare (NSW) Technology Base program to give more direct input from the SPECWAR community. Identified sources and routes of transition funding to take capabilities under development and mature them to a point where they are ready for procurement. This Science Advisor position was eliminated by COMNAVSPECWARCOM.
- Science Advisor, OPNAV N81 (Assessments), synthesized products from think tanks, defense policy experts, intelligence analysts, warfighter, technologists and scientists, to frame S&T in the context of emergent security policy issues. Advised N81 on S&T issues. Led broad-based special studies on Navy vulnerability to future disruptive threats, areas for improvement in campaign and mission analysis modeling, Navy vulnerability to an Electromagnetic Pulse (EMP) attack, S&T required to bringing non-lethal ship stopping technologies to the Fleet, and finding game-changing technologies to target long-range S&T investments. Presented gaps in areas of future warfighting capability that need to be improved using technology in order to help force long range S&T planning.
- Science Advisor, Fleet Anti-Submarine Warfare Command (FLTASW), participated in defining the investment plan and associated risks for a \$500 million program to develop the next generation Anti-Submarine Warfare sensors. Developed performance objectives for a Naval Mine and Anti-Submarine Warfare (NMAWC)/Third Fleet (C3F) lead Military Utility Assessment (MUA) of the Deployable Autonomous Distributed System (DADS) program. Briefed the technologies, risks, near term development and experimentation plans for ASW Distributed Netted Systems (DNS) to COMTHIRDFLT.

FY 2007 Plans:

Continue FY 06 efforts with 24 Science Advisors.

FY 2008 Plans:

Continue FY 07 efforts with 24 Science Advisors.

FY 2009 Plans:

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Continue FY 08 efforts with 24 Science Advisors.

C. OTHER PROGRAM FUNDING SUMMARY:

NAVY RELATED RDT&E:

- PE 0601152N In-House Laboratory Independent Research
- PE 0601153N Defense Research Sciences
- PE 0602114N Power Projection Applied Research
- PE 0602123N Force Protection Applied Research
- PE 0602131M Marine Corps Landing Force Technology
- PE 0602235N Common Picture Applied Research
- PE 0602236N Warfighter Sustainment Applied Research
- PE 0602271N RF Systems Applied Research
- PE 0602435N Ocean Warfighting Environment Applied Research
- PE 0602747N Undersea Warfare Applied Research
- PE 0602782N Mine and Expeditionary Warfare Applied Research
- PE 0603114N Power Projection Advanced Technology
- PE 0603123N Force Protection Advanced Technology
- PE 0603235N Common Picture Advanced Technology
- PE 0603236N Warfighter Sustainment Advanced Technology
- PE 0603271N RF Systems Advanced Technology
- PE 0603640M USMC Advanced Technology Demonstration (ATD)
- PE 0603727N Joint Experimentation
- PE 0603729N Warfighter Protection Advanced Technology
- PE 0603747N Undersea Warfare Advanced Technology
- PE 0603758N Navy Warfighting Experiments and Demonstrations
- PE 0603782N Mine and Expeditionary Warfare Advanced Technology

D. ACQUISITION STRATEGY:

Not applicable.