Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy										DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*				R-1 ITEM NOMENCLATURE PE 0603123N: *Force Protection Advanced Technology*							
COST ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**Cost To Complete**	**Total Cost**
Total Program Element	63.732	45.020	18.616	-	18.616	28.540	32.664	35.406	36.043	Continuing	Continuing
2912: *Force Protection Advanced Technology*	61.354	42.516	16.062	-	16.062	25.950	30.040	32.733	33.318	Continuing	Continuing
3049: *Force Protection*	2.378	2.504	2.554	-	2.554	2.590	2.624	2.673	2.725	Continuing	Continuing

Note

FY 2013 funding associated with Future Naval Capability (FNC) efforts are transferring to a new Program Element titled Future Naval Capabilities Advanced Technology Development (PE 0603673N). This is to enhance the visibility of the FNC Program by providing an easily navigable overview of all 6.3 FNC investments in a single location.

A. Mission Description and Budget Item Justification

The efforts described in this Program Element (PE) are based on investment directions as defined in the Naval S&T Strategic Plan approved by the S&T Corporate Board (Sep 2011). This strategy is based on needs and capabilities from Navy and Marine Corps guidance and input from the Naval Research Enterprise (NRE) stakeholders (including the Naval enterprises, the combatant commands, the Chief of Naval Operations (CNO), and Headquarters Marine Corps). It provides the vision and key objectives for the essential science and technology efforts that will enable the continued supremacy of U.S. Naval forces in the 21st century. The Strategy focuses and aligns Naval S&T with Naval missions and future capability needs that address the complex challenges presented by both rising peer competitors and irregular/asymmetric warfare.

This PE addresses advanced technology development associated with providing the capability of Platform and Force Protection for the U.S. Navy. This program supports the development of technologies associated with all naval platforms (surface, subsurface, terrestrial and air) and the protection of those platforms. This PE supports the Future Naval Capabilities (FNC) in the areas of Sea Shield and Cross Pillar Enablers, and Enterprise and Platform Enablers (EPE). The goal of this program is to provide the ability to win or avoid engagements with other platforms or weapons and, in the event of engagement, to resist and control damage while preserving operational capability. Surface Ship & Submarine, Hull, Mechanical & Electrical (HM&E), Missile Defense, Fleet Force Protection and Defense against Undersea Threats, and Emerging Threats activities support acquisition enablers such as FNC efforts.

Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy					DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*		R-1 ITEM NOMENCLATURE PE 0603123N: *Force Protection Advanced Technology*			
B. Program Change Summary ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**
Previous President's Budget	61.877	64.057	71.574	-	71.574
Current President's Budget	63.732	45.020	18.616	-	18.616
Total Adjustments	1.855	-19.037	-52.958	-	-52.958
• Congressional General Reductions	-	-0.214			
• Congressional Directed Reductions	-	-18.823			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	3.945	-			
• SBIR/STTR Transfer	-1.679	-			
• Program Adjustments	-	-	-53.147	-	-53.147
• Rate/Misc Adjustments	-	-	0.189	-	0.189
• Congressional General Reductions Adjustments	-0.411	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603123N: *Force Protection Advanced Technology*	PROJECT 2912: *Force Protection Advanced Technology*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2912: *Force Protection Advanced Technology*	61.354	42.516	16.062	-	16.062	25.950	30.040	32.733	33.318	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project addresses advanced technology development associated with providing the capability of Platform and Force Protection for the U.S. Navy. This project supports the development of technologies associated with all naval platforms (surface, subsurface, terrestrial, and air) and the protection of those platforms. It supports the Sea Shield and Cross Pillar Enablers, and Enterprise and Platform Enablers (EPE) -- Future Naval Capabilities (FNCs). The goals of this project are to provide the ability to win or avoid engagements with other platforms or weapons and, in the event of engagement, to resist and control damage while preserving operational capability.

This Project reflects the alignment of investments for the following ECs: Anti-Ship Missile Defense Technologies; Defense of Harbor and Near-Shore Naval Infrastructure Against Asymmetric Threats; Sea Based Missile Defense of Ships & Littoral Installations; Four-Torpedo Salvo Defense; Shipboard Force Protection in Port and Restricted Waters - Detection and Classification; Compact Power Conversion Technologies; Affordable Submarine Propulsion and Control Actuation and Underwater Total Ship Survivability.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: FLEET FORCE PROTECTION AND DEFENSE AGAINST UNDERSEA THREATS	16.878	11.432	-
Description: Fleet Force Protection and Defense against Undersea Threats addresses efforts that include applied research for complementary sensor and processing technologies for platform protection and shipboard technologies to increase the survivability of surface ship and submarine platforms against torpedo threats. The first major goal of this activity is to develop complementary sensor and processing technologies for 21st century warfighting success and platform protection. Current small platforms (both surface and airborne) have little or no situational awareness (SA) or self-protection against air, surface, and asymmetric threats. This activity will provide tactical aircraft (TACAIR) and other platforms with effective threat warning and self-protection. The technology areas specific to platform protection will develop individual or multi-spectral [Electro-Optic (EO), IR, radio frequency (RF), EM, visual, and acoustic] sensors and associated processing. To defend platforms from current and advanced threats in at-sea littoral environments and in port, these technologies must improve multi-spectral detection and distribution of specific threat information. The Fleet Force Protection portion of this activity includes support to the FNC Enabling Capabilities for: Aircraft Integrated Self-protection Suites; Intent Determination - EO/IR Enhancements; Proof-of-Concept for Non-lethal Approach; Advanced Electronic Sensor Systems for Missile Defense; Hostile Fire Detection and Response Spirals 1 and 2; Defense of Harbor and Near-Shore			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603123N: *Force Protection Advanced Technology*	PROJECT 2912: *Force Protection Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013

Naval Infrastructure Against Asymmetric Threats; Four-Torpedo Salvo Defense; and Shipboard Force Protection in Port and Restricted Waters - Detection and Classification.

The second major goal of this activity is to develop enabling technologies that will increase the survivability of surface ship and submarine platforms against torpedo threats. Proposed technologies focus on defeating high priority threats including torpedoes (i.e. straight running, wake homing, acoustic homing, air dropped torpedoes, and salvoes of torpedoes). Technologies developed will minimize shipboard impact and require no shipboard organizational maintenance. The Anti-Torpedo Torpedo (ATT) provides technologies that enable an ATT to engage threat torpedoes detected by a surface ship towed sensor system. The ultimate goal is to develop technologies to enable a torpedo defense capability, including ship self-defense against salvo torpedo attacks, to fill the FNC Sea Shield Warfighting Capability Gap/Enabling Capability: Platform Defense against Undersea Threats. Ultimately the goal is to deliver an anti-torpedo-torpedo for use in defeating a four-torpedo salvo attack against a surface platform. This activity supports the development of technologies that aid the helicopter pilot when operating in degraded visual cue environments (brown-out).

The decrease in funding from FY 2011 to FY 2012 is due to several FNCs that are nearing completion. The decrease of funding from FY 2012 to FY 2013 is the result of the transfer of resources from this R2 activity to new FNC R2 activities titled Sea Strike and Sea Shield. Efforts in these R2 activities have been continued from FY 2012 to FY 2013 into new R2 activities to support all FNC program EC Investments.

FY 2011 Accomplishments:

Sensors & Associated Processing -

- Continue new FNC Enabling Capability (EC) Shipboard Force Protection in Port and Restricted Waters - Detection and Classification. This project will develop mission specific electro-optic/infrared sensors to detect, classify, and determine the intent of potential terrorist and special operations force threats to ships and craft in port and transiting restricted waters.
- Continue the Countermeasures for Advanced Imaging Infrared (IIR) Guided Missiles FNC effort by commencing IIR threat surrogate hardware development.
- Continue the Countermeasures for Millimeter Wave Guided Missiles FNC effort by initiating wide band gap monolithic microwave integrated circuit (MMIC) Ka-band development.
- Continue the Multifunction Capabilities for Missile Warning Sensors FNC effort by commencing signal processor development.
- Continue the Helicopter Laser-Based Landing Aids FNC effort by commencing laser technologies development.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603123N: *Force Protection Advanced Technology*	PROJECT 2912: *Force Protection Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continue the Helicopter Laser-Based Landing Aids FNC effort by development of a ladar capable of sensing through brown-out and providing a display format that is usable to the pilot. - Complete FNC EC Shipboard Force Protection in Port and Restricted Waters - Detection and Classification. This effort develops mission specific electro-optic/infrared sensors to detect, classify, and determine the intent of potential terrorist and special operations force threats to ships and craft in port and transiting restricted waters. Sensor projects included in this FNC EC include Distributed Millimeter Wave (DmmW) Sensor, Active/Passive Dual Imaging IR (MW/SW) Sensor, and Situational Panoramic Infrared (SPIR) Sensor. Underwater Platform Self-Defense - - Continue the development of low-cost, light-weight swimmer detection and localization technologies. - Continue expanded development of autonomous, underway refueling for Unmanned Sea Surface Vehicle Technologies. - Continue advanced development of software encoded algorithms for the Anti-Torpedo Torpedo (ATT) sensor and controller that will enable ATT's to successfully engage torpedo salvoes of up to four attacking units. In support of FNC (Force Projection Advanced Technology), perform the following efforts - - Initiate the development of advanced technologies that support delivery of Navy approved FNC enabling capabilities structured to close operational capability gaps in force projection. - Initiate the packaging of advanced force projection technologies into deliverable FNC products and ECs that can be integrated into acquisition programs within a five year period. - Initiate the development of force projection technologies that support naval requirements identified within the Sea Shield and Sea Strike naval capability pillars as well as those applicable to specific naval platforms and those that apply across the naval enterprise. ***FY 2012 Plans:*** Sensors & Associated Processing - Continue all efforts of FY 2011, less those noted as completed above. - Complete the Multifunction Capabilities for Missile Warning Sensors FNC effort. - Complete the Helicopter Laser-Based Landing Aids FNC effort by development of a ladar capable of sensing through brown-out and providing a display format that is usable to the pilot. Underwater Platform Self-Defense			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603123N: *Force Protection Advanced Technology*	PROJECT 2912: *Force Protection Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continue all efforts of FY 2011.			
Title: MISSILE DEFENSE (MD)	27.270	13.318	-
Description: This activity describes Missile Defense Science and Technology (S&T) projects of the Sea Shield Future Naval Capability (FNC) program. - Naval Interceptor Improvements (NII) technology upgrades for STANDARD Missile (SM) future missile. Metrics are to achieve SM performance requirements in specified tactical rain environments and all specified electronic countermeasures environments, while meeting the planned transition date. - Extended Distributed Weapons Coordination (EDWC) algorithms for an Automated Battle Management Aid (ABMA) that recommends hard kill weapons, soft kill countermeasures, and emission control measures to reduce the probability of being hit or to optimally engage threats with self-defense weapons. Metric is improved probability of negation (Pneg) against advanced ballistic & cruise missile anti-ship threats that may be susceptible to decoys & jamming, while meeting the planned transition date. - Positive Control of Naval Weapons (PCNW) - additional technology upgrades for SM to enable forward relay, remote launch and potentially forward pass engagements. Metrics are classified. - Midcourse and Terminal Algorithms (MTA) for prototype state-of-the art weapon system algorithms for STANDARD Missile (SM) engagements vs modern anti-ship missile threats. Specific metrics are classified. - Enhanced Lethality Guidance Algorithms (ELGA) to increase Navy shipboard missile probability of kill versus an expanded threat set including ASBMs and advanced ASCMs. Metrics for this project are classified. - Enhanced Maneuverability Missile Airframe (EMMA) technology for Navy shipboard missile systems to intercept highly agile maneuvering ASCMs and ASBMs. Metrics for this project are classified. - Integrated Active & Electronic Defense (IAED) technology basis for response combinations of active and electronic weapons & systems to optimize Pneg against ASBMs and ASCMs, including potential interactions. Metrics are classified. - Radar Resource Manager (RRM) algorithms and software for weapon control system capability to provide dynamic platform and force-level radar management and coordination of radar resources for integrated air and missile defense (IAMD). Metrics will be classified. The FY 2011 to FY 2012 decrease represents completion of EDWC, PCNW, and NII projects in FY 2011 and is not offset by initiation of the RRM project in FY 2012. The decrease of funding from FY 2012 to FY 2013 is the result of the transfer of resources from this R2 activity to new FNC R2 activities titled Sea Strike and Sea Shield. Efforts in these R2 activities have been continued from FY 2012 to FY 2013 into new R2 activities to support all FNC program EC Investments. ***FY 2011 Accomplishments:*** - Complete EDWC, NII and PCNW efforts.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continue MTA and ramp up of the ELGA and EMMA projects. - Initiate IAED project effort. ***FY 2012 Plans:*** - Continue all efforts of FY 2011. - Initiate RRM project effort.			
Title: SURFACE SHIP & SUBMARINE HULL MECHANICAL & ELECTRICAL (HM&E) ***Description:*** Activity includes: Signature Reduction, Hull Life Assurance, and Advanced Capability Electric Systems. Signature Reduction addresses electromagnetic (EM), infrared (IR), and acoustic signature tailoring, both topside and underwater. Hull Life Assurance addresses development of new structural system approaches for surface ships and submarines, including the management of weapon effects to control structural damage and the improvement of structural materials. Advanced Capability Electric Systems area addresses electrical and auxiliary systems and component technology to provide improvements in system energy and power density, system operating efficiency, and recoverability from casualties. Advanced Damage Control Countermeasures addresses fire, smoke, and flooding detection using a volume sensor and the use of a hybrid water-mist for electronic space protection. This activity includes support to the Sea Strike, Cross Pillar Enablers, and Enterprise and Platform Enablers (EPE) FNC programs. The decrease of funding from FY 2012 to FY 2013 is the result of the transfer of resources from this R2 activity to new FNC R2 activities titled Enterprise and Platform Enablers and Power and Energy. Efforts in these R2 activities have been continued from FY 2012 to FY 2013 into new R2 activities to support all FNC program EC Investments. ***FY 2011 Accomplishments:*** -Continue development of diesel fuel reforming technology for molten carbonate and proton exchange membrane fuel cells. - Continue risk reduction activities of advanced superconducting homopolar main propulsion motor with General Atomics. - Continue development of autonomous recovery system for Unmanned Sea Surface Vehicles from a host ship. - Continue development of thermal management technology for shipboard power distribution. - Continue development of Integrated Damage Control Systems which includes Integrated Damage Control Communications and Advanced Magazine Protection System. - Continue compact power conversion technologies FNC transitioned from PE 0603236N/Turbine Engine Technology. - Continue Total Ship Survivability Damage Tolerance and Recoverability efforts which include	17.206	17.766	6.841

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
integrated damage control situation awareness technologies. - Continue expansion of the Next Generation Integrated Power Systems (NGIPS) technology development, to de-risk and demonstrate applicable Medium Voltage Direct Current (MVDC) power dense, efficient, and fault tolerant technologies needed for future surface, and subsurface platforms. - Continue Affordable Submarine Propulsion and Control Surface Actuator technologies focused on the development and demonstration of affordable advanced material propellers and torque dense and quiet actuation of submarine control surface efforts. - Continue Underwater Total Ship Survivability/Payload Implosion and Platform Damage Avoidance efforts. - Complete preliminary designs of control surface actuator systems. - Complete expanded demonstration of superconductive degaussing coil in a relevant environment. - Complete detailed design and breadboard demonstration of control surface actuator systems. - Complete Compact Power Conversion Technology Phase 2 Critical Component Development. - Initiate scaled testing and large scale analysis for ship protection systems. - Initiate fabrication of scaled control surface actuator systems. - Initiate Compact Power Conversion Technology Phase 3 large Scale Component Development and testing. ***FY 2012 Plans:*** - Continue all efforts of FY 2011, less those noted as completed above. - Complete Compact Power Conversion Technology Phase 3 large Scale Component Development and testing. - Initiate air-independent energy system sub-scale component development, analysis, and benchtop testing. - Initiate efforts in support of Renewable-Sustainable Expeditionary Power FNC. - Initiate efforts in support of Long Endurance Undersea Vehicle Propulsion FNC. ***FY 2013 Plans:*** - Continue all efforts of FY 2012, less those noted as completed above. - Initiate efforts to conduct advanced technology demonstrations to evaluate emerging energy technologies using Navy and Marine Corps facilities as test beds.			
Title: AIRCRAFT TECHNOLOGY	-	-	9.221
Description: The Aircraft Technology activity develops technologies for enhanced capability of Naval aviation aircraft platforms in terms of mission effectiveness, platform range, responsiveness, survivability, observability, readiness, safety and life cycle cost. It also develops new Naval air vehicle concepts and high impact, scaleable Naval air vehicle technologies, such as - autonomous air vehicle command and control, helicopter and tiltrotor rotor drive systems, aerodynamics, propulsion systems, materials, structures and flight controls for future and legacy air vehicles. This activity directly supports the Naval Aviation Enterprise Science and			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Technology Objectives and the Naval Science and Technology Strategic Plan, principally in the Platform Mobility, Survivability and Self-defense, Affordability/Maintainability/Reliability and Power Projection Focus Areas. The funding increase in FY 2013 is due to the Autonomous Aerial Cargo/Utility System (AACUS) program and the 6.3 portion of the Variable Cycle Advanced Technology (VCAT) program. ***FY 2013 Plans:*** - Initiate demonstration of initial core software, sensor, air vehicle, and capability applications for Autonomous Aerial Cargo/Utility System (AACUS). - Initiate the advanced technology demonstration portion of the Variable Cycle Advanced Technology (VCAT) Program. Critical technology development efforts will begin with major engine manufactures and system contractors to develop/mature the highest priority, long-lead propulsion system technologies, including variable/adaptive cycle engine components, for next generation carrier-based TACAIR/ISR systems.			
Accomplishments/Planned Programs Subtotals	61.354	42.516	16.062

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

The overall goals of this advanced technology program are the development of technologies which focus on the warfighter and providing the ability to win or avoid engagements with other platforms or weapons and, in the event of engagement, to resist and control damage while preserving operational capability. Overall metric goals are to transition the advanced technology projects into acquisition programs. Each Activity within this PE has unique goals and metrics, some of which include classified quantitative measurements.

Specific examples of metrics under this PE include:
- Advanced technology demonstrations to evaluate emerging energy technologies.
- Items included within the Missile Defense Activity description.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603123N: *Force Protection Advanced Technology*	PROJECT 3049: *Force Protection*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3049: *Force Protection*	2.378	2.504	2.554	-	2.554	2.590	2.624	2.673	2.725	Continuing	Continuing

A. Mission Description and Budget Item Justification

Advanced technologies developed, critical to protecting naval installations, will provide seamless full spectrum protection against asymmetric terrorist attack by improving the ability to: sense developing and immediate threats; shape our responses through improved situational awareness and decision making; shield personnel, mission critical facilities, infrastructure, and operating fleet assets; maintain essential functions; and sustain and restore critical services in the aftermath of an incident. Technologies developed will also seek to reduce the required manpower and skill levels devoted to the force protection mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: EMERGING THREATS	2.378	2.504	2.554

Description: This activity includes: Advanced technologies developed, critical to protecting naval installations, will provide seamless full spectrum protection against asymmetric terrorist attack by improving the ability to: sense developing and immediate threats; shape our responses through improved situational awareness and decision making; shield personnel, mission critical facilities, infrastructure, and operating fleet assets; maintain essential functions; and sustain and restore critical services in the aftermath of an incident. Technologies developed will also seek to reduce the required manpower and skill levels devoted to the force protection mission.

FY 2011 Accomplishments:

- Continue development of lower cost/higher performance Force Protection sensors and automated detection algorithms, and decision support tools.
- Continue research to reduce force protection manpower and equipment costs through automation and predictive learning algorithms.
- Continue threat characterization research and perception experiments for sensor performance optimization and model development and validation.
- Continue development of all weather sensors optimized for installation of force protection.
- Continue research to advance sensor fusion capabilities in high density networks with diverse sensor grids.
- Continue research into sensors for use in counter-surveillance around protected facilities.
- Complete interim demonstration of prototype Force Protection sensors.
- Complete development of intrusion/incident response countermeasures for Force Protection.
- Initiate development of assessment algorithms and information analysis technologies to augment skills or replace persons in operations centers.

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Initiate research into sensors and countermeasures for use against unmanned underwater vehicles. ***FY 2012 Plans:*** - Continue all efforts of FY 2011, less those noted as completed above. - Complete threat characterization research and perception experiments for sensor performance optimization and model development and validation. - Complete research to advance sensor and fusion capabilities in high density networks with diverse sensor grids. ***FY 2013 Plans:*** - Continue all efforts of FY 2012, less those noted as completed above. - Conduct interim demonstration of acoustic sensors for perimeter and area surveillance in realistic environments. - Initiate multi-band electro-optical sensor and fusion algorithm development and demonstrations in adverse weather conditions. - Initiate development of protection technology for naval installation power and energy infrastructure. - Expand research into sensors and countermeasures for use against unmanned underwater to include surface swimmers, underwater divers, and underwater diver propulsion aids.			
Accomplishments/Planned Programs Subtotals	2.378	2.504	2.554

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

The overall goals of this advanced technology program are the development of technologies which will provide seamless full spectrum protection against asymmetric terrorist attack by improving the ability to protect naval installations. Overall metric goals are to reduce the required manpower and skill levels devoted to the force protection mission. Specific metric under the Project includes: 50% reduction of manpower associated with FP surveillance, situational awareness, and decision making, 2x improvement in elctro-optical sensor performance in adverse weather conditions, 50%reduction in sensor cost per square or cubic meter of detection at a given resolution, and a 50% reduction in false alarm rates for automated detection and tracking algorithms both above and below water.