CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE May 2009	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**			R-1 ITEM NOMENCLATURE **0603721N/ENVIRONMENTAL PROTECTION**				
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Total PE Cost	20.413	20.740	20.661				
0401 / Shipboard Waste Mgmt	5.609	6.796	6.050				
0817 / Pollution Abatement	7.550	8.379	5.761				
9204 / Marine Mammal Research	6.097	4.367	8.850				
9999 / Congressional Add	1.157	1.198	0.000				

A. MISSION DESCRIPTION:

(U) Many environmental laws, regulations, and policies impose restrictions on Navy vessels, aircraft, and facilities that interfere with operations and/or increase the cost of operations. The Navy must be able to conduct its national security mission in compliance with applicable environmental requirements in the U.S. and abroad without compromising performance, safety, or health, while simultaneously minimizing the cost of compliance. This program develops and evaluates processes, hardware, systems, and operational procedures that will allow the Navy to operate in U.S., foreign, and international waters, air, space, and land areas while complying with environmental laws, regulations, Executive Orders, policies and international agreements. Projects support the Navy's compliance with OPNAVINST 5090.1C and other DoD and Navy environmental-related policies; the Clean Water Act, Clean Air Act, Act to Prevent Pollution from Ships, National Environmental Policy Act, Marine Plastic Pollution Research and Control Act, Endangered Species Act, Marine Mammal Protection Act, Resource Conservation and Recovery Act, Toxic Substances Control Act, U.S. Public Vessel Medical Waste Anti-Dumping Act, and Federal Facility Compliance Act; and Executive Orders 12088, 12114, 12843, 13089, 13101, 13112, 13148, and 13158. Project 0401 supports RDT&E efforts that enable Navy ships and submarines to comply with laws, regulations, and policies in four major areas: ozone depleting substances, liquid wastes, solid wastes, and hazardous and other wastes. Project 2210 supports RDT&E that enables Navy compliance with environmental laws, regulations and policies impacting the basing, re-alignment, operation, repair, and replacement of Naval aircraft in four major areas: engine emissions, air vehicle hazardous materials and wastes, ozone depleting substances, and aviation shipboard emissions. Project 0817 supports RDT&E to develop and validate technologies to enable Navy facilities to comply with environmental laws, regulations, and policies in a cost-effective manner. Project 9204 supports RDT&E to develop planning and monitoring tools for minimizing Fleet contacts with and potential harassment (physiological and behavior) of marine animals including threatened and endangered species in response to Federal laws and regulations and public scrutiny.

(U) Project 9999 is comprised of Congressional adds.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	R-1 ITEM NOMENCLATURE **0603721N/ENVIRONMENTAL PROTECTION**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2008	FY 2009	FY 2010
FY09 President's Budget	20.618	19.632	20.309
FY10 President's Budget	20.413	20.740	20.661
Total Adjustments	-0.205	1.108	0.352
(U) Summary of Adjustments			
Congressional Rescissions	0.000	0.000	0.000
Congressional Adjustments	0.000	-0.056	0.000
SBIR/STTR/FTT Assessment	-0.192	0.000	0.000
Program Adjustments	-0.013	1.200	0.490
Rate/Misc Adjustments	0	-0.036	-0.138
Total	-0.205	1.108	0.352

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**				PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	5.609	6.796	6.050				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Navy ships and submarines must routinely operate in U.S., international, and foreign waters, and visit numerous U.S. and foreign ports. No body of water is without environmental restrictions that impact the movements and operations of Navy vessels. Environmental requirements tend to be most restrictive in port and in coastal waters, where the Navy's increasing littoral presence places ships and submarines in discharge-restricted waters for longer periods of time. Growing international cooperation in addressing global environmental concerns is resulting in expanding areas of ocean considered environmentally susceptible, where special prohibitions on ship discharges and operations are imposed. Navy vessels must comply with applicable environmental legal requirements while maintaining continued access to all waters for operations, exercises, training, and port access. The large crews and limited onboard space of Navy ships and submarines severely constrain their ability to hold wastes for return to port for shoreside disposal. This project develops and evaluates shipboard waste processing equipment, systems, and data to enable ships and submarines to manage their wastes in an environmentally-compliant, safe, and operationally-compatible manner. It also addresses afloat environmental issues other than shipboard wastes, e.g., hull antifouling and access to environmental data for planning Fleet operations and exercises.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
RDTEN/BA 4	**0603721N/ENVIRONMENTAL PROTECTION**	**0401/Shipboard Waste Mgmt**	

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Technical Authority	1.809	2.600	2.000
RDT&E Articles Quantity	0	0	0

FY08: (U) Develop environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.

FY09: (U) Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.

FY10: (U) Develop environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.

	FY 2008	FY 2009	FY 2010
Integrated Liquid Wastes	2.700	2.900	3.000
RDT&E Articles Quantity	0	0	0

FY08: (U) Continue support of rule making process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Naval vessels; continue discharge analyses and setting of Marine Pollution Control Devices (MPCD) performance standards. Continue development of MPCD treatment systems, technologies and procedures.
Continue evaluation of commercial waste water systems.

FY09: (U) Continue support rule making process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS waste water systems.

FY10: (U) Continue support rule making process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS waste water systems.

	FY 2008	FY 2009	FY 2010
Hazardous and Other Major Ship Wastes	1.100	1.296	0.650
RDT&E Articles Quantity	0	0	0

FY08: (U) Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development and testing of new low/no-copper underwater hull antifouling coatings.

FY09: U) Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development and testing of new low/no-copper underwater hull antifouling coatings.

FY10: (U) Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development and testing of new low/no-copper underwater hull antifouling coatings.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**

	FY 2008	FY 2009	FY 2010
Ballast Water Exchange	0.000	0.000	0.400
RDT&E Articles Quantity	0	0	0

FY10: (U) Conduct surveys of Amphibious Warfare Ships to explore feasible engineering enhancements reduce the time and/or and manpower involved in executing ballast water double exchange. Develop and document double exchange procedures and guidance procedures and prepare documentation and training materials for the new ballast water management guidance. Investigate ballasting data logging options.

C. OTHER PROGRAM FUNDING SUMMARY:

(U) Demonstrated and validated technologies are transitioned to various SCN, OPN, and O&MN budget accounts for implementation as part of a Fleet modernization program or new ship construction.

(U) Related RDT&E: (U) Defense Research Sciences/Shipboard Processes (PE 0601153N / 3162)

(U) Related RDT&E: (U) Readiness, Training, and Environmental Quality/Logistics and Environmental Quality (PE 0602233N)

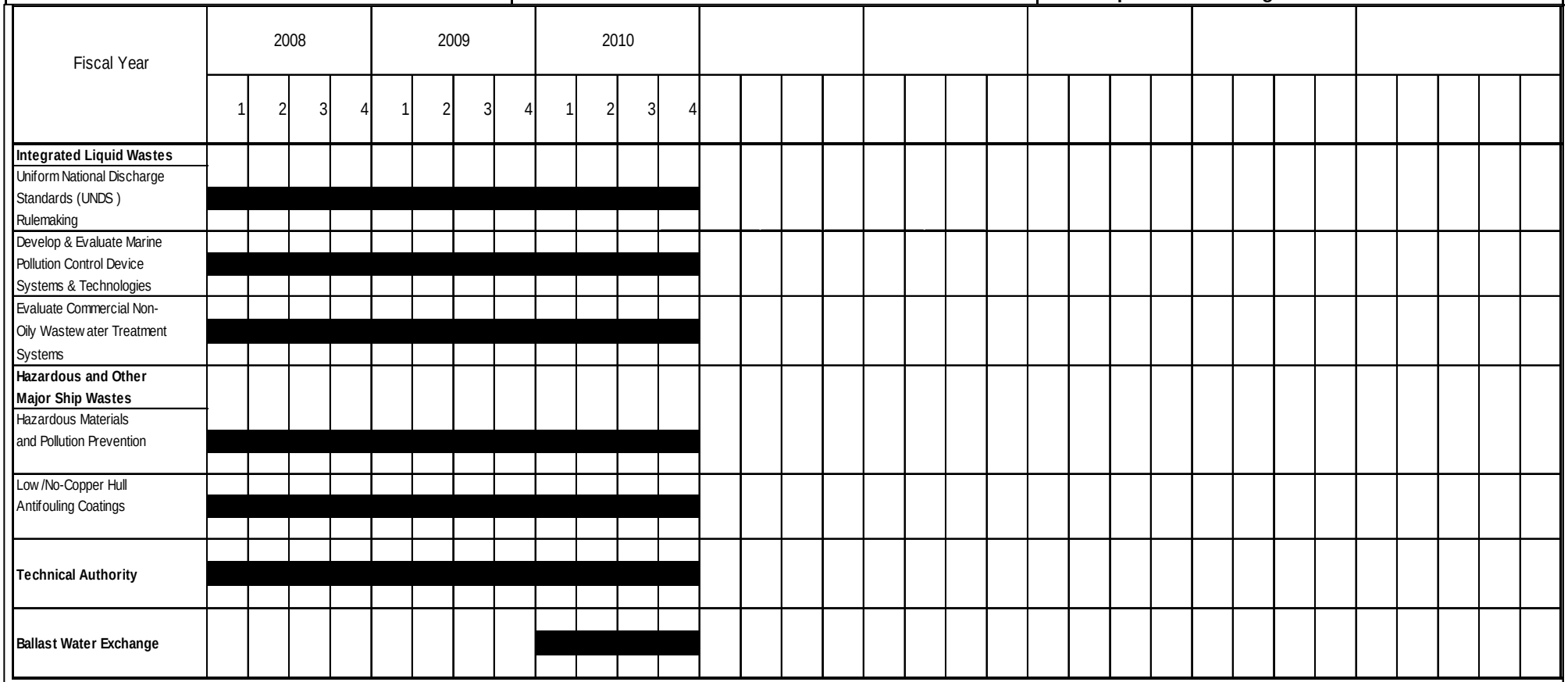
D. ACQUISITION STRATEGY:

(U) RDT&E Contracts are Competitive Procurements.

E. MAJOR PERFORMERS:

CLASSIFICATION:		UNCLASSIFIED								
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS							DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2009 Cost ($000)	FY 2009 Award Date	FY 2010 Cost ($000)	FY 2010 Award Date		Total Cost ($000)	Target Value of Contract
Ancillary Hardware Development	Various	Misc. Contracts	19.149	0.000		0.000				
Primary Hardware Development	C/CPFF	Oceaneering	1.000	0.000		0.000				
Systems Engineering	C/CPFF	John J. McMullen & Son	4.487	0.000		0.000				
Subtotal Product Development			**24.636**	**0.000**		**0.000**				
Remarks:										
Software Development	WR	SPAWARS, Charleston, SC	10.838	0.000		0.000				
Subtotal Support Costs			**10.838**	**0.000**		**0.000**				
Remarks:										
Developmental Test & Evaluation	WR	NSWCCD, Bethesda, MD	160.272	5.436	VAR	4.810	VAR			
Developmental Test & Evaluation	WR	NRL,Wash,DC	29.954	0.300	VAR	0.200	VAR			
Developmental Test & Evaluation	WR	SPAWARSYSCEN,SD,CA	11.630	0.110	VAR	0.110	VAR			
Developmental Test & Evaluation	WR	Misc. Govt Labs	22.832	0.050	VAR	0.050	VAR			
Developmental Test & Evaluation	C/CPFF	SAIC, San Diego, CA	15.570	0.000		0.000				
Developmental Test & Evaluation	C/CPFF	Misc. Contracts	12.676	0.150	VAR	0.150	TBD			
Process Control Engineering	C/CPFF	M. Rosenblatt & Sons	5.150	0.740	VAR	0.720	TBD			
Developmental Test & Evaluation	C/CPFF	ONR, Arlington, VA	0.400	0.000		0.000				
Developmental Test & Evaluation	WR	Naval Postgraduate School	1.800	0.000		0.000				
Process Control Engineering	MIPR	EPA, Hdqtrs	0.840	0.000		0.000				
Subtotal Test and Evaluation			**261.124**	**6.786**		**6.040**				
Remarks:										
Travel	ALLOT	NAVSEA. Washington, DC	0.280	0.010	TBD	0.010				
SBIR Assessment			0.078	0.000		0.000				
Subtotal Management Services			**0.358**	**0.010**		**0.010**				
Remarks:										
Total Cost			**296.956**	**6.796**		**6.050**				

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **0401/Shipboard Waste Mgmt**			
Schedule Profile	FY 2008	FY 2009	FY 2010				
Integrated Liquid Wastes							
Uniform National Discharge Standards (UNDS) Rulemaking	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Develop & Evaluate Marine Pollution Control Device Systems & Technologies	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Evaluate Commercial Wastewater Treatment Systems	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Hazardous and Other Major Ship Wastes							
Hazardous Materials and Pollution Prevention	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Low/No-Copper Hull Antifouling Coatings	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Technical Authority	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Ballast Water Exchange			Q1 Q2 Q3 Q4				

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**				PROJECT NUMBER AND NAME **0817/Pollution Abatement**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	7.550	8.423	5.803				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Inherent to the realization of the vision outlined in Sea Power 21 are certain environmental consequences that will, to a lesser or greater degree, impact on the Navy's ability to fully achieve the strategy outlined in the Navy Capability Pillars (NCP) SEA SHIELD, SEA STRIKE, SEA BASING and FORCEnet and the supporting initiatives of SEA WARRIOR, SEA TRIAL and SEA ENTERPRISE. Readiness and training are primary considerations for determining whether any fighting force is at its peak proficiency. The ability to train our forces in a realistic environment is paramount. Today's reality requires training and operating within environmental constraints (national and international laws and agreements), and searching for alternatives to comply with and alleviate those constraints. Moreover, as we develop new systems and technologies in support of Sea Power 21, the Navy must anticipate potential environmental regulations which, while not currently an issue, could in the future adversely impact our ability to project and sustain our forces at home and abroad.

This program identifies pervasive Navy shoreside environmental requirements and develops and validates information, new processes, and technologies that address requirements that pose significant impact on Naval shore activities in complying with environmental laws, regulations, orders, and policies. The goal of the program is to maximize opportunities for significant cost savings while minimizing personnel liabilities, operational costs, and regulatory oversight and preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions in support of the Navy's transformational strategy. Program investments supports 4 of 5 Environmental Enabling Capabilities (EEC-2 though 5) that are required to meet the objectives of Sea Power 21 as detailed in the POM08 Integrated Navy Environmental Readiness Capability Assessment for Science and Technology (S&T) and Development, test and Evaluation (DT&E).

(U) EEC-2 MAXIMIZE TRAINING AND TESTING RANGE REQUIREMENTS WITHIN ENVIRONMENTAL CONSTRAINTS

(U) This capability addresses environmental impacts and restrictions at Navy land and sea ranges, including munitions testing and manufacturing, to ensure Navy ranges are available to conduct required training and testing operations for the Fleet. Investments in EEC-2 provide validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges to maximize the availability and utilization of the ranges. The results support operational readiness by providing the tools and technologies necessary for sustaining and managing Navy land and sea ranges related to unexploded ordnance (UXO) and munitions, encroachment, air quality, airborne noise, water quality, and wetlands. Capabilities gained include the ability to assess and determine the risks from underwater UXO, the evaluation and prioritization ordnance contaminated sites for evaluation in environmental programs, and the implementation of range specific best management practices by evaluating and modeling available process, procedures, and technologies.

(U) EEC-3 PLATFORM MAINTENANCE AND REPAIR WITH MINIMAL ENVIRONMENTAL FOOTPRINT

(U) This capability focuses on minimizing or eliminating environmental impact related to Navy and Marine Corps weapon system repair and maintenance operations. Investments in EEC-3 provide valid knowledge, models, process, and technologies to minimize regulated emissions, discharges and hazardous material usage during the repair and maintenance of ships, submarines, and surface/sub-surface vehicles and aircraft and air vehicles. The program supports Fleet operational readiness and Navy acquisition communities by investing in information to understand emerging environmental requirements and to develop innovative processes and technologies that result in savings while reducing the fleet environmental constraints related to platform maintenance. Capabilities and benefits gained include, but are not limited to, the reduction in the usage of heavy metals used in metal finishing (chromium and cadmium), reduced hazardous air pollutant (HAP) emissions, and the development of best management practices and tools to minimize the use of hazardous materials and the generation of hazardous wastes associated with maintaining and repairing ships, submarines and aircraft and unmanned vehicles. Results of program investments will be leveraged across weapon system and platform acquisition to ensure continued reduction in lifecycle costs and long-term environmental compliance burdens to the Fleet.

(U) EEC-4. SUPPORT SHORE READINESS WITHIN ENVIRONMENTAL CONSTRAINTS

(U) Naval shore establishment requires the capability to operate and maintain facilities and provide waterfront and airfield services to the fleet while complying with applicable environmental regulations and minimizing environmental impacts and costs. The program invests in knowledge and innovative processes and technologies that minimize infrastructure and operational costs, regulated emissions, while minimizing discharges and hazardous material usage from ship (waterfront) and aviation operations. Capabilities and benefits gained under EEC-4 include reduced costs associated with wastewater treatment, elimination/reduction in the use of HAPs, ozone depleting substances (ODSs), and volatile organic compounds (VOCs), and the associated reporting requirements, reduced hazardous waste and disposal costs, and improved storm water management.

((U) EEC-5. COST-EFFECTIVE MANAGEMENT OF ENVIRONMENTAL REGULATORY REQUIREMENTS

(U) The environmental compliance regulations require base managers to permit, monitor and report on many processes associated with weapon system and platform operations. Naval shore environmental managers require the capability to efficiently and cost effectively manage these compliance requirements. Under EEC-5, the program invests in improved data collection, methods, and models to assess environmental impacts and ecological risk assessments of Naval operations on harbors, U.S. waterways, and surrounding communities. Benefits include gaining standardized technical environmental management improvements/techniques related to source control, assessment, and monitoring. EEC-5 also provides validated knowledge, models, processes and technologies to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0817/Pollution Abatement**	

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Maximize Training & Testing Requirements Within Environmental Constrain	1.980	2.273	2.096
RDT&E Articles Quantity	0	0	0

FY08: (U) Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. The analysis of the long term disposition of seafloor cables will identify cable impacts to the marine environments aiding the sustainment and management of Navy underwater ranges and support new underwater surveillance systems that require the laying of seafloor hardware and cables. The initiation of the Seafloor Cable Baseline Assessment will establish a baseline condition from which any adverse effects associated with seafloor ranges, in particular, seafloor communication cables can be determined. Development of direct push and point-and-detect sensor systems, for use in the field, will allow the measurement of perchlorate either for rapid screening and monitoring purposes or for contaminant source characterization of perchlorate in groundwater or surface waters. Environmental risk associated with abandoned equipment in underwater ranges.

FY09: (U) Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Continue the analysis of the long term disposition of seafloor cables will identify cable impacts to the marine environments aiding the sustainment and management of Navy underwater ranges and support new underwater surveillance systems that require the laying of seafloor hardware and cables. Continue the Seafloor Cable Baseline Assessment to establish a baseline condition from which any adverse effects associated with seafloor ranges, in particular, seafloor communication cables can be determined. Continued effort to assess environmental risk associated with abandoned equipment in underwater ranges. Sound Energy Model Assessment on underwater marine environment. Develop Checklist for BIP Scenarios.

FY10: (U) Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Continued effort to assess environmental risk associated with abandoned equipment in underwater ranges. Continue the assessment of sound energy models on underwater marine environment. Conclusion of efforts on the Seafloor Cable Baseline Assessment will allow decision makers to determine a long term monitoring strategy for the underwater range. Seafloor cable laying strategies and decision tool. Determining the Phototoxic Properties of Energetic Contaminants in Aquatic Environments.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0817/Pollution Abatement**	

	FY 2008	FY 2009	FY 2010
Maintenance	1.892	2.477	0.794
RDT&E Articles Quantity	0	0	0

FY08: (U) The tasks in this EEC address ship and submarine Fleet and aircraft maintenance operations with the overall objectives of reducing the cost of compliance and mission increasing readiness. Continuing efforts will provide new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships, submarines, and aircraft. Analysis on acid recycle systems for pipe flushing wastes will identify technology alternatives and allow selection of a candidate system as a pier side integrated system to recycle and reuse of acid/heavy metal wastewater generated in submarine and surface ship pipe flushing operations and submarine missile tube cleaning. The development of an automated convergent spray process for non-skid coatings using 100% solid non-skid coating system will eliminate volatile organic compounds emissions during the application of non-skid on Navy vessels. Alternative solvents demonstrations for ship maintenance operations will be conducted to allow development of a decision tool to standardize the approach to hazardous material (HM) avoidance across ship and shore activities and identify alternatives for NAVSEA targeted chemicals. A data tool to determine what hazardous materials are consumed and what wastes are generated by ship platform maintenance will allow future pollution prevention efforts to focus on specific chemicals and the operations that use them. Material and component testing will validate high velocity oxygen fuel (HVOF) thermal spray coatings as a cost-effective and technologically superior alternative to the current hard chrome plating used on helicopter dynamic components. The use of HVOF coatings will result in a significant reduction in worker exposure to carcinogenic hexavalent chromium and increase service life of components. The use of low temperature powder coating will help minimize HAP/VOC emissions and the use of hexavalent chromium. Thin film sulfuric acid anodizing (TFSAA) with non-chromated sealers as an alternative to chrome acid anodizing will be evaluated to help the Navy meet the requirements of EO 13148 that requires a 50% reduction in use of hexavalent chromium by 31 December 2006. Zinc-nickel plating will be demonstrated as an acceptable replacement for cadmium plated repairs as a touch-up applications for high-strength steels. Suitable substitutes for polystyrene/polyester resins and chemical strippers used during repairs to radome will be demonstrated.

FY 09: (U) Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships, submarines, and aircraft. Complete aircraft sustainment related projects. Development of dry dock best management practices and decision selection tool assisting naval shipyards, stations and bases in meeting the copper discharge standards will conclude. Alternative solvents demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals will continue. The development of hazardous material allocation information for ship maintenance will continue. Complete acid waste treatment project for cleaning shipboard heat exchangers. Demonstration of a hull bio-fouling cleaning/removal approach. Evaluation of Solvent Extraction Methodologies for the Extraction of Polychlorinated Biphenyls (PCBs) in Shipboard Materials

FY10: (U) Divest investments in EEC3 related to aircraft sustainment. Continue development of dry dock cleaning alternatives. Evaluation of Solvent Extraction Methodologies for the Extraction of Polychlorinated Biphenyls in Shipboard Materials Continue hull bio-fouling cleaning and removal technology. Tools/mitigation measures for coating operations on vessel freeboard areas. Elimination of Overspray in Shipbuilding and Facilities Maintenance Operations

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0817/Pollution Abatement**	

	FY 2008	FY 2009	FY 2010
Support Shore Readiness within Environmental Constraints	1.930	2.904	2.471
RDT&E Articles Quantity	0	0	0

FY 08: (U) Provide new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. The demonstration and validation of Improved best management practices (BMPs) - Stormwater Treatment Technology will enhance the management of stormwater run-off and reduce costs while addressing Navy unique requirements and ensuring compliance with stormwater discharge regulations. Continue the development and demonstration of a zinc removal filter for treating collected compensated ballast wastewater will reduce disposal and operation costs and preserve the capability to refuel Naval vessels in port. The development of a wastewater treatment system to collect and treat the waste stream for vertical launch missile tubes will improve submarine readiness while reducing the release of hazardous wastes to the environment. Initiate an investigation into the feasibility of the onshore treatment of ballast water to control the introduction of aquatic invasive species will provide an assessment tool to manage invasive species and minimize open-water ballast water exchanges. An assessment of drinking water supply security technologies will investigate potable water supply security system methodologies and technologies that are available or under development and assess their applicability to the security of Navy water supplies. An investigation and demonstration is planned to improve biofouling control and preventative maintenance planning to ensure permanent oil containment boom systems meet or exceed their intended 4-year service life.

FY09: (U) Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. Continue selected demonstrations of alternative solvents for industrial operations. Continue the development of a wastewater treatment system to collect and treat the waste stream for vertical launch missile tubes. Continue investigating improved biofouling control and preventative maintenance planning for permanent oil containment boom systems. Continue Shoreside Ballast Water Treatment effort. Dry dock best management practices tool will assist naval shipyards, naval stations, and submarine bases in meeting the copper discharge standards for NPDES and Stormwater discharges.

FY10: (U) Integrating effort related to Shipboard Acid Waste Treatment Technology. This pier-side reclamation system separates heavy metal and marine fouling sludge to allow ship waste water to meet local sanitary sewer discharge limits. Validate a Shipboard Mobile Surface Cleaning Technology. Validation of a mobile surface cleaning technology for critical cleaning of shipboard non-skid and shoreside surfaces to remove contaminants, mitigate pollution from weather deck and stormwater runoff and reduce associated manpower and waste management burden. Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, and other base operations. Realign the program to focus on addressing the fleets high priority needs and investment in processes related to waterfront support to address risks associated with sea level rise and more frequent and intense storm events. Reduced Generation of Shoreside Managed Waste from Pierside Supported Underwater Ship Husbandry Operations.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0817/Pollution Abatement**	

	FY 2008	FY 2009	FY 2010
Cost-Effective Management of Environmental Regulatory Requirements	1.748	0.725	0.400
RDT&E Articles Quantity	0	0	0

FY08: (U) Provide validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. The identification, review, and demonstration of sediment transport methods and tools that assess physical stability and natural recovery potential at contaminated sediment sites will provide a defined framework that can be used by program mangers and their technical staff to clearly understand the kind of measurements needed at sites and how those measurements can be used to develop management decisions at contaminated sediment sites. The assessment of pollutant source tracking technologies will allow the Navy to accurately quantify Navy contaminant loads by identifying, reviewing, demonstrating, and validating contaminant source tracking technologies, which will provide a technical framework for Navy Remedial Project Managers (RPMs) and environmental managers. The development of a guidance document to detail and solve problems for Navy compliance with the Disinfectant/Disinfection Byproducts (D/DBP) rule and related issues. Continue developing containment and monitoring strategies for contaminated sediments. Develop an integrated software system that will allow for more exact location/identification of UXO in sediments, thereby eliminating excess costs of investigating/remediating non-UXO metal anomalies and further reduce safety risks to workers conducting the removals and long-term safety to subsequent users. Disinfection Byproducts Users Guide. Finalize the evaluating pollutant source tracking technologies and sediment transport users guide (A practical user's guide that provides RPMs with practical guidance on evaluating sediment transport at contaminated sediment sites to achieve successful, cost effective remedial decisions).

FY09: (U) Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Abiotic In Situ Treatment of 1,2,3-Trichloropropane to Protect Drinking Water Resources.

FY10: (U) . The Potable Water Quality Management Guidance Document which provides Navy drinking water program managers with the direction and information for meeting compliance goals contained in the new disinfection byproducts rules. Continue providing validated knowledge, models, processes and system to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Continue effort to establish guidelines and limitations for the Use of Biodiesel with Ground Tactical Vehicles. Maximize the use of biodiesel fuels in tactical vehicles and equipment. Demonstrate the practical application of Compound Specific Isotope Analysis (CSIA) associated with Monitored Natural Attenuation (MNA) to provide practical guidelines associated with its use and interpretation. Initiate efforts related to the regulatory requirements associated with climate change and associated emissions and reporting.

C. OTHER PROGRAM FUNDING SUMMARY:

(U) P-1 Procurement Line Item No. & Name. Not Applicable.

(U) C-1 MILCON Project No. & Name. Not Applicable.

(U) RELATED RDT&E: This project transitions shoreside pollution abatement technologies from two Navy Science and Technology programs and the Strategic Environmental Research and Development Program (SERDP). Project funding is leveraged by transitioning technologies to the Environmental Security Technology Certification Program (ESTCP) for final certification and by providing funding for Navy participation in ESTCP projects. Execution of this project is coordinated with related Marine Corps, Army, Air Force and NASA programs through direct coordination and active participation in the Joint Group for Pollution Prevention (JG-PP).

(U) PE 0602233N, Readiness, Training, and Environmental Quality Technology Development

(U) PE 0603716D, Strategic Environmental Research & Development Program (SERDP)

(U) PE 0603851D, Environmental Security Technology Certification Program (ESTCP)

D. ACQUISITION STRATEGY:

(U) This project is categorized as Non-ACAT (Non Acquisition). The project delivers a broad spectrum of products that require a variety of acquisition processes to implement. Equipment products for Naval stations and other mission funded activities costing over $100K are often procured centrally through the Navy Pollution Prevention Equipment Program (PPEP) or directly through the base operating budget. Equipment products for Shipyards and other Navy Working Capital Fund (NWCF) activities costing over $100K are procured through their Capital Purchases Program (CPP). For both types of activities, equipment products costing less than $100K, and process changes not requiring the purchase of new equipment such as consumable material or product substitutions, are funded through the activity's operating budgets. Occasionally there is a technology that must be implemented as a specialized facility. These are acquired through the Military Construction (MCON) Program. All these acquisition processes are pursued using a common strategy that satisfies the needs of all the critical stakeholders: 1) Fleet end user; 2) Funding sponsor for the Navy end user; 3) Other stakeholders with cognizance over the Navy process or operation being changed; 4) Cognizant environmental federal, state, and local regulators; and 5) The private or government organization that will produce the product.

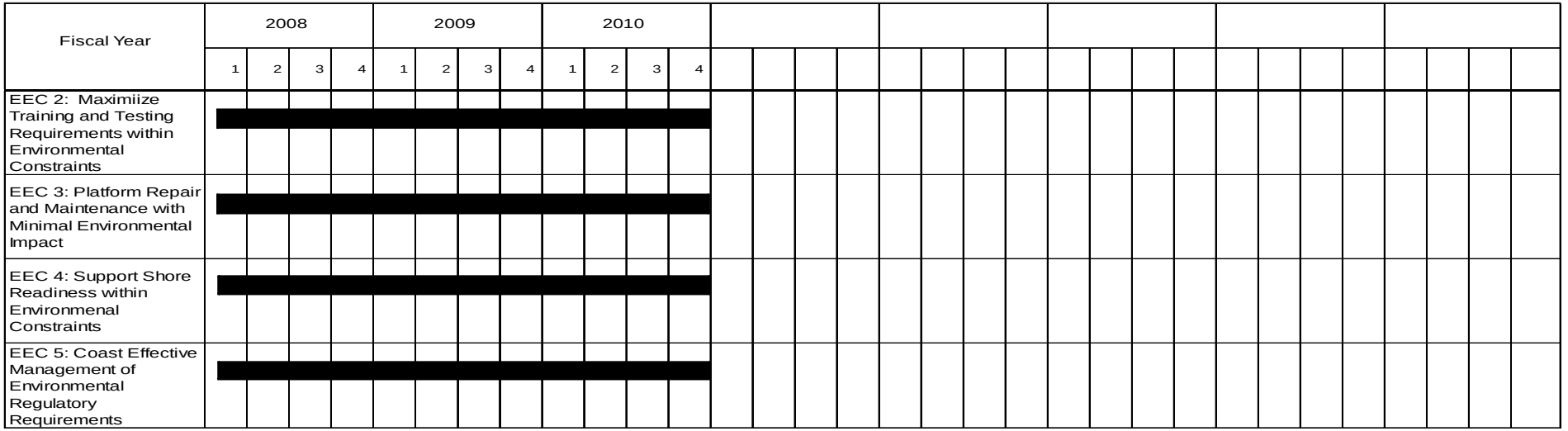
E. MAJOR PERFORMERS:

(U) Performing Activities: Naval Surface Warfare Center, Carderock Division (NSWC/CD), Naval Facilities Engineering Service Center (NFESC), Naval Surface Warfare Center, Indian Head Division (NSWC/IH), Space and Warfare Systems Center, San Diego (SSC/SC).

(U) Award Dates: About 55% of the project is executed via contracts awarded by the performing activities.

CLASSIFICATION:	UNCLASSIFIED									
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS							DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **0817/Pollution Abatement**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2009 Cost ($000)	FY 2009 Award Date	FY 2010 Cost ($000)	FY 2010 Award Date		Total Cost ($000)	Target Value of Contract
EEC 2	WR/PO	NFESC	5.316	0.835	VAR	0.718	VAR			
EEC 2	WR/PO	SSC/SD	2.607	1.460	VAR	1.378	VAR			
EEC 2	WR/PO	NSWC/IH	15.666	0.000		0.000				
EEC 3	WR/PO	NFESC	14.659	0.512	VAR	0.420	VAR			
EEC 3	WR/PO	NSWC/CD	7.694	0.720	VAR	0.250	VAR			
EEC 3	WR/PO	NAWC PAX	3.951	1.223	VAR	0.124	VAR			
EEC 4	WR/PO	NFESC	21.872	2.160	VAR	1.622	VAR			
EEC 4	WR/PO	NSWC/CD	0.200	0.344	VAR	0.488	VAR			
EEC 4	WR/PO	SSC/SD	0.520	0.400	VAR	0.340	VAR			
EEC 5	WR/PO	NFESC	4.497	0.286	VAR	0.183	VAR			
EEC 5	WR/PO	NSWC/CD	0.215	0.000		0.000				
EEC 5	WR/PO	NAWC PAX	0.223	0.000		0.000				
EEC 5	WR/PO	SSC/SD	4.673	0.439	VAR	0.238	VAR			
Subtotal Product Development			**82.093**	**8.379**		**5.761**				
Remarks:										
Total Cost			**82.093**	**8.379**		**5.761**				

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **0817/Pollution Abatement**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **0817/Pollution Abatement**			
Schedule Profile	FY 2008	FY 2009	FY 2010				
EEC 2: Maximize training and Testing Requirements within Environmental Constraint	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
EEC 3: Platform Repair and Maintenance with Minimal Environmental Impact	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
EEC 4: Support Shore Readiness within Environmental Constraints	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
EEC 5: Coast Effective Management of Environmental Regulatory Requirements	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**				PROJECT NUMBER AND NAME **9204/Marine Mammal Research**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	6.097	4.367	8.850				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Navy has been and will continue to be subject to litigation with regard to the potential injuring and killing of marine animals by the use of intense underwater sound. Since Fleet operation and training areas coincide with known or probable marine mammal habitats, migration routes, or breeding areas, the possibility exists that such incidents are likely to continue in the future. The increasing public interest and pressure has resulted in escalating Fleet costs. For example, Fleet and SYSCOM development activities have been interrupted, modified, or altogether cancelled and environmental regulations have, among other things, required new ship construction shock trials to obtain Federal permits and conduct extensive environmental planning that can take several years to complete. The incorporation of mitigation measures in Fleet training operations to minimize the potential adverse effects on protected marine animals can significantly reduce the realism of these operations. In addition, the testing, evaluation, and deployment of new sonar detection and monitoring systems that use active acoustics are under intense public scrutiny for their potential adverse effects on whales and other marine mammals. Navy needs scientific evidence to substantiate its claims of limited or inconsequential adverse effects to marine life from operations.

(U) This program primarily focuses on the development of planning, monitoring, and mitigating tools to aid the Fleet in minimizing contact with and the potential harassment of protected marine animals during operations, exercises, training, and undersea surveillance and weapons testing. These new capabilities will encompass historical and newly acquired data and analytical models that together can predict marine animal habitats (where they are likely to be) and their natural and expected behavior (diving patterns, prey localization, calling activity, etc.).

(U) Accurate and timely monitoring and predicting the movement of whales and other protected marine animals plus an enhanced knowledge of how marine animals may react to Fleet activities (e.g., physiological and behavioral effects) will reduce Navy interaction with these animals; minimize the risk that legally-imposed monitoring and avoidance measures will adversely affect Fleet operations and exercises; minimize the substantial costs associated with operations, exercises, and tests that have to be modified or curtailed as a result of concerns about protected marine animals; and will reduce the likelihood of litigation related to actual or anticipated compliance problems with protected animals.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9204/Marine Mammal Research**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Marine Mammal Location, Abundance and Movement	2.118	1.218	1.236
RDT&E Articles Quantity	0	0	0

FY08: (U) Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.
FY09: (U) Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.
FY10: (U) Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.

	FY 2008	FY 2009	FY 2010
Navy Marine Mammal Program Plus-Up	0.894	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY08: (U) Funds provided to SPAWAR San Diego to work with Hubbs SeaWorld Research Institute to support the intent of a FY07 Congressional Add related to the Navy Marine Mammal Program.

	FY 2008	FY 2009	FY 2010
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	1.215	1.251	2.797
RDT&E Articles Quantity	0	0	0

FY08: (U) Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.
FY09: (U) Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.
FY10: (U) Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9204/Marine Mammal Research**

	FY 2008	FY 2009	FY 2010
Mitigation Methodologies: Monitoring, New Technology, and Risk Assess	1.820	1.838	2.247
RDT&E Articles Quantity	0	0	0

FY08: (U) Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.

FY09: (U) Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.

FY10: (U) Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.

	FY 2008	FY 2009	FY 2010
Acoustic Source Propagation	0.050	0.060	0.070
RDT&E Articles Quantity	0	0	0

FY08: (U) Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.
FY09: (U) Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.
FY10: (U) Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.

	FY 2008	FY 2009	FY 2010
Living Marine Mammal Resources Research Center (LMRRC)	0.000	0.000	2.500
RDT&E Articles Quantity	0	0	0

FY10: (U) The Living Marine Mammal Resources Research Center (LMRRC) will establish, maintain, and manage a cooperative research program comprised of science and technology (S&T) and research, development, testing, and evaluation (RDT&E) projects; product development; technology transfer; and alliances with academia and the commercial sector to foster the advancement in understanding and conserving living marine resources. This program will help preserve and protect current and future undersea warfighting capabilities.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9204/Marine Mammal Research**

C. OTHER PROGRAM FUNDING SUMMARY:

(U) Related RDT&E: (PE 0601153N / PE 0602435N / PE 0602782N / PE 0603235N)

(U) Related RDT&E: Strategic Environmental Research & Development Program (SERDP)

(U) Related RDT&E: National Oceanographic Partnership Program (NOPP)

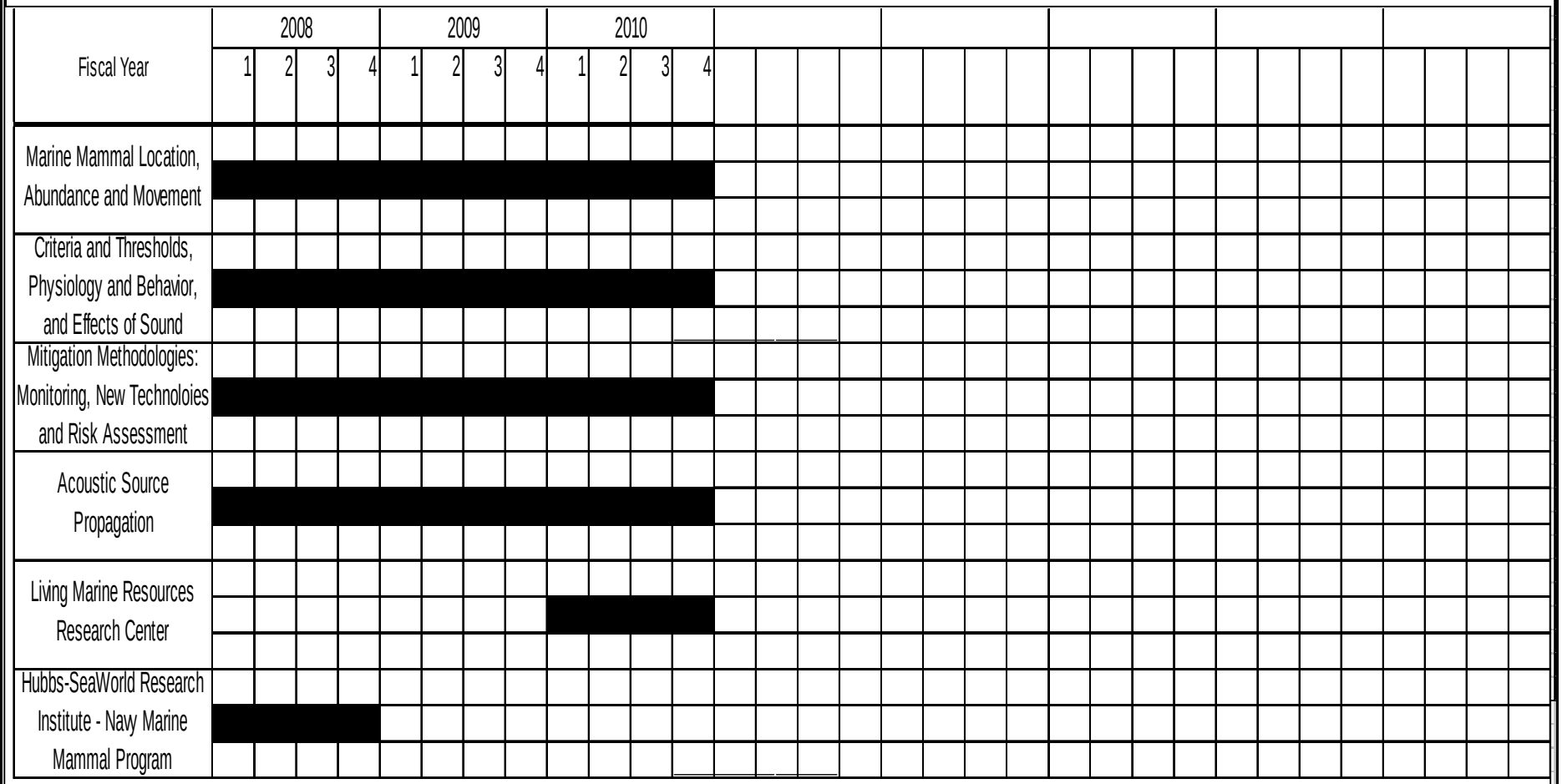
D. ACQUISITION STRATEGY:

(U) RDT&E Contracts are Competitive Procurements.

E. MAJOR PERFORMERS:

CLASSIFICATION:	UNCLASSIFIED									
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS							DATE May 2009			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**		PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **9204/Marine Mammal Research**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2009 Cost ($000)	FY 2009 Award Date	FY 2010 Cost ($000)	FY 2010 Award Date		Total Cost ($000)	Target Value of Contract
Subtotal Management Services			**0.000**	**0.000**		**0.000**				
Remarks:										
Developmental Test & Evaluation	WR	NUWC	2.163	0.989	VAR	0.000				
Developmental Test & Evaluation	CPFF	University of Maryland	0.680	0.000		0.000				
Developmental Test & Evaluation	WR	NPGS, Monterey, CA	1.375	0.460	VAR	0.000				
Developmental Test & Evaluation	MIPR	NOAA, Fish Science Center	0.990	0.200	VAR	0.000				
Developmental Test & Evaluation	CPFF	Misc Contracts	0.533	0.000		0.000				
Developmental Test & Evaluation	CPFF	Scripps Institute	5.142	0.450	VAR	0.000				
Developmental Test & Evaluation	CPFF	U of Wash, APL	0.650	0.000		0.000				
Developmental Test & Evaluation	CPFF	Duke Univ.	0.425	0.000		0.000				
Developmental Test & Evaluation	CPFF	Oregon State Univ.	0.745	0.100	VAR	0.000				
Developmental Test & Evaluation	CPFF	Woods Hole Oceanographic Inst	0.171	0.940	VAR	0.000				
Developmental Test & Evaluation	WR	SPAWARSYSCEN SD CA	1.332	0.000		0.000				
Developmental Test & Evaluation	WR	NSWCCD Bethesda	0.290	0.000		0.000				
Developmental Test & Evaluation	WR	NRL	0.140	0.000		0.000				
Developmental Test & Evaluation	WR	NATO URC	0.091	0.328	VAR	0.000				
Developmental Test & Evaluation	CPFF	Marine Acoustics, Inc.	1.000	0.000		0.000				
Developmental Test & Evaluation	CPFF	San Diego State Univ	0.350	0.350	VAR	0.000				
Developmental Test & Evaluation	CPFF	ONR	0.030	0.000		0.000				
Developmental Test & Evaluation	WR	NMSA	0.582	0.550	VAR	0.000				
Developmental Test & Evaluation	CPFF	SPAWARSYSCEN SD LMRRC	0.000	0.000		8.850	TBD			
Subtotal Test & Evaluation			**16.689**	**4.367**		**8.850**				
Remarks:										
Total Cost			**16.689**	**4.367**		**8.850**				

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9204/Marine Mammal Research**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**			PROJECT NUMBER AND NAME **9204/Marine Mammal Research**			
Schedule Profile	FY 2008	FY 2009	FY 2010				
Marine Mammal Location, Abundance, and Movement	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Acoustic Source Propagation	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4				
Living Marine Resources Research Center			Q1 Q2 Q3 Q4				
Hubbs-SeaWorld Research Institute - Navy Marine Mammal Program	Q1 Q2 Q3 Q4						

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 4**	PROGRAM ELEMENT NUMBER AND NAME **0603721N/ENVIRONMENTAL PROTECTION**	PROJECT NUMBER AND NAME **9999/Congressional Add**	

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010	
9536C Anoxia Research	1.157	1.198	0.000	
RDT&E Articles Quantity	0	0	0	

(U) This Congressional Add is a continuation of a FY 2007 Congressional Add. This effort will involve the monitoring of the oxygen content of the water in Hood Canal and streams throughout the watershed and will increase understanding of the long-term effects of low-oxygen levels on sealife. The monitoring information will be used to develop a mathematical model of Hood Canal. The model will be used to evaluate the effect of different potential sources of input to Hood Canal that might account for an existing anoxic condition.