CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 7**	R-1 ITEM NOMENCLATURE **0205632N/MK-48 ADCAP**						
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	24.214	19.952	15.879	15.560	28.155	28.680	29.218
0366 / MK 48 ADCAP	24.214	17.567	15.879	15.560	28.155	28.680	29.218
9999 / CONGRESSIONAL ADDS	0.000	2.385	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

A. (U) Mission Description and Budget Item Justification:

MK 48 ADCAP (Advanced Capability) Research, Development, Test and Evaluation (RDT&E) program executes spiral development of weapon performance improvements in three development product areas: (1) Common Broadband Advanced Sonar System (CBASS); (2) Advanced Processor Builds (APBs), and (3) Torpedo Technology Insertion. The budget enables Acquisition Category (ACAT) III development to address Chief of Naval Operations (CNO) defined capability-based requirements and mission needs. This PE (0205632N/0366) is tied to development programs that leverage a joint US/Australia, Armaments Cooperative Project to develop MK 48 ADCAP, and Future Naval Capability (FNC) technologies developed by Office of Naval Research (ONR).

(U) Countermeasure (CM) sophistication and availability on the open market directly affects ADCAP kill proficiency and its ability to counter rapidly evolving threats. The focus of the MK 48 ADCAP torpedo Research and Development (R&D) program for FY01 and out shifted from being primarily concentrated on Software Block Upgrade efforts towards coordinated hardware upgrades, rapid Commercial-Off-the-Shelf (COTS) insertion, and APBs to rapidly upgrade the ADCAP to counter evolving threats and maintain robust performance. The CBASS program developed and fielded a broadband sonar capable of identifying CMs and discriminating them from the target. CBASS developed 22 test articles (2 test vehicles and 20 Engineering Development Models (EDMs). CBASS met Milestone II requirements on 6 March 1998 and received Milestone Decision Authority (MDA) approval to proceed into Engineering and Manufacturing Development (EMD) phase . CBASS Phase I received Full Rate Production (FRP) decision in June 2006. Initial Operational Capability (IOC) occurred duringFY06. The Commonwealth of Australia, Royal Australian Navy (RAN) is participating to jointly develop CBASS torpedo and signed an Armaments Cooperative Project (ACP) Agreement March 2003. The intent of the CBASS program was to achieve improvements in shallow water torpedo performance.

(U) The MK 48 ADCAP torpedo R&D program focuses on two specific areas near term: Torpedo APBs and broadband sonar capability. The CNO continues to stress shallow water (less than 600 feet) as a critical operating area to counter third world diesel electric submarines. Torpedo testing in shallow water has demonstrated that in-service ADCAP has less than full capability in this difficult environment. However, this testing, in conjunction with laboratory simulation efforts, has shown that significant performance improvements can be made by implementing changes to weapon tactics and software algorithms. Development, implementation and testing of these changes is being accomplished under the Torpedo APB program. This program also leverages the RAN joint torpedo program and Future Naval Capability (FNC) technologies developed by the Office of Naval Research (ONR) in the areas of torpedo broadband signal processing, tactics processing, and alertment. The Torpedo APB program also will incorporate MK 54 Lightweight Torpedo algorithms and tactics software to create a Common Torpedo Development program. Future APB software builds will utilize the common torpedo software to deliver software and tactics to both the MK 48 ADCAP and MK 54 Lightweight torpedoes.

(U) The Torpedo Technology Insertion program will provide for evolutionary torpedo improvements and upgrades (including the transition and testing of advanced technologies from the Research and Development (R&D) community (6.2/6.3) and contractors). This approach will incorporate developmental testing of the Future Naval Capability (FNC) transitioning technologies for Advanced Capability (ADCAP) upgrades in the areas of torpedo sensors, weapon/platform connectivity, warhead lethality, speed and depth. These efforts will continue torpedo development investment at a lower cost and shorter term than traditional torpedo programs.

(U) BothFNC technologies and MK 54 Lightweight torpedo developments will be transitioned into ADCAP through Tech Insertion packages. Priorities for Tech Insertion are a new array to improve torpedo effectiveness,advanced processing, and advanced counter-countermeasure capability.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
FY2008 President's Budget	24.870	17.941	18.709
FY2009 President's Budget Controls	24.214	19.952	15.879
Total Adjustments	- 0.656	2.011	- 2.830
Summary of Adjustments			
Program Adjustment	0.000	0.000	-2.800
Undistributed General Reductions	-0.031	-0.389	0.000
Small Business Innovation Research (SBIR)	-0.625	0.000	0.000
Pricing Adjustment	0.000	0.000	-0.030
Congressional Adds		2.400	
Subtotal	-0.656	2.011	-2.830
Schedule:			
Technology Insertions: Technology Insertion is being			
delayed two years due to a reduction in CBASS Technology			
Insertion Funding in FY09 and FY10. Aggressive development			
efforts to resume in FY11 to support FY15 delivery.			

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
MK 48 ADCAP MODS WPN/PE0204284N/BA-3/BLI 3225)	64.568	72.858	61.545	68.728	65.557	66.871	76.047		

D. ACQUISITION STRATEGY:

Sole Source Production Contract awarded in FY 2004 for MK 48 ADCAP MODS, Lightweight MK 54 and Common Broadband Advanced Sonar System (CBASS) kits, including Royal Australian Navy (RAN) units.

Low-Rate Initial Production (LRIP) Contract for CBASS units awarded in FY 2004 and to include RAN units.

E. MAJOR PERFORMERS:

Naval Undersea Warfare Center (NUWC) Division Newport, Newport, RI - System Integrator and Software Developer. Continued integration and development testing of CBASS hardware and software components and test equipment.

Raytheon awarded Sole Source Production Contract for MK 48 ADCAP MODS, Lightweight MK 54 and CBASS kits, including RAN units.

Commander Operational Test and Evaluation Force (COTF) - Test Planning, Independent Operational Evaluation.

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 7**	PROGRAM ELEMENT NUMBER AND NAME **0205632N/MK-48 ADCAP**				PROJECT NUMBER AND NAME **0366/MK 48 ADCAP**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	24.214	17.567	15.879	15.560	28.155	28.680	29.218
RDT&E Articles Qty	0	2	0	1	0	0	1

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Notes: Articles reflect: FY08: delivery of Advanced Processor Builds (APBs) Spiral 1; FY08:completion of APB Spiral 2/3 development; FY10: delivery of APB-1/Spiral 4 (Common); FY13: delivery of APB/Spiral 5.

A. (U) Mission Description and Budget Item Justification:

MK 48 ADCAP Research, Development ,Test and Evaluation (RDT&E) program executes spiral development of weapon performance improvements in two development product areas: (1)Advanced Processor Builds (APBs), and (2) Torpedo Technology Insertion. The budget enables Acquisition Category (ACAT) III development to address Chief of Naval Operations (CNO) defined capability-based requirements and mission needs. This PE (0205632N/0366) is tied to development programs that leverage a joint US/Australia, Armaments Cooperative Project to develop MK 48 ADCAP, and Future Naval Capability (FNC) technologies being developed by Office of Naval Research (ONR).

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 7**	PROGRAM ELEMENT NUMBER AND NAME **0205632N/MK-48 ADCAP**	PROJECT NUMBER AND NAME **0366/MK 48 ADCAP**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
TORPEDO APB	13.976	15.012	15.379
RDT&E Articles Quantity	0	2	0

FY07 - Efforts focused on Advance Processor Builds (APBs) Spiral 2/3 development. Tasking included software coding, modeling and simulation and engineering test in water. Steps in the APB process included 1) evaluation, 2) assessment, 3) implementation, and 4) system assessment. Completed operational testing for APB Spiral 1.Improves shallow water performance and increases the probability of kill.

FY08 - Spiral 1 torpedo APB software build planned for release in FY08 which provides full Spiral 1 capability and torpedo effectiveness gain. Complete APB Spiral 2/3 development. Continue Spiral 4 development. Improves shallow water performance and increases the probability of kill.

FY09 - Continue development of APB Spiral 4 in preparation for software release in FY10. Improves shallow water performance and increases the probability of kill.

	FY 2007	FY 2008	FY 2009
OPERATIONAL TEST SUPPORT	0.500	1.000	0.500
RDT&E Articles Quantity	0	0	0

FY07- Provided for accreditation requirements and conducted analysis relating to APB Spiral 1release planned in FY08.Improves shallow water performance and increases probability of kill.

FY08 - Conduct analysis and prepare final report for test and evaluation efforts prior to APB Spiral 1 release. Improves shallow water performance and increases probability of kill.

FY09 - Provide for accreditation requirements and conduct analysis relating to APB Spiral 4 software release planned in FY10.Improves shallow water performance and increases probability of kill.

	FY 2007	FY 2008	FY 2009
TECHNOLOGY INSERTIONS	9.738	1.555	0.000
RDT&E Articles Quantity	0	0	0

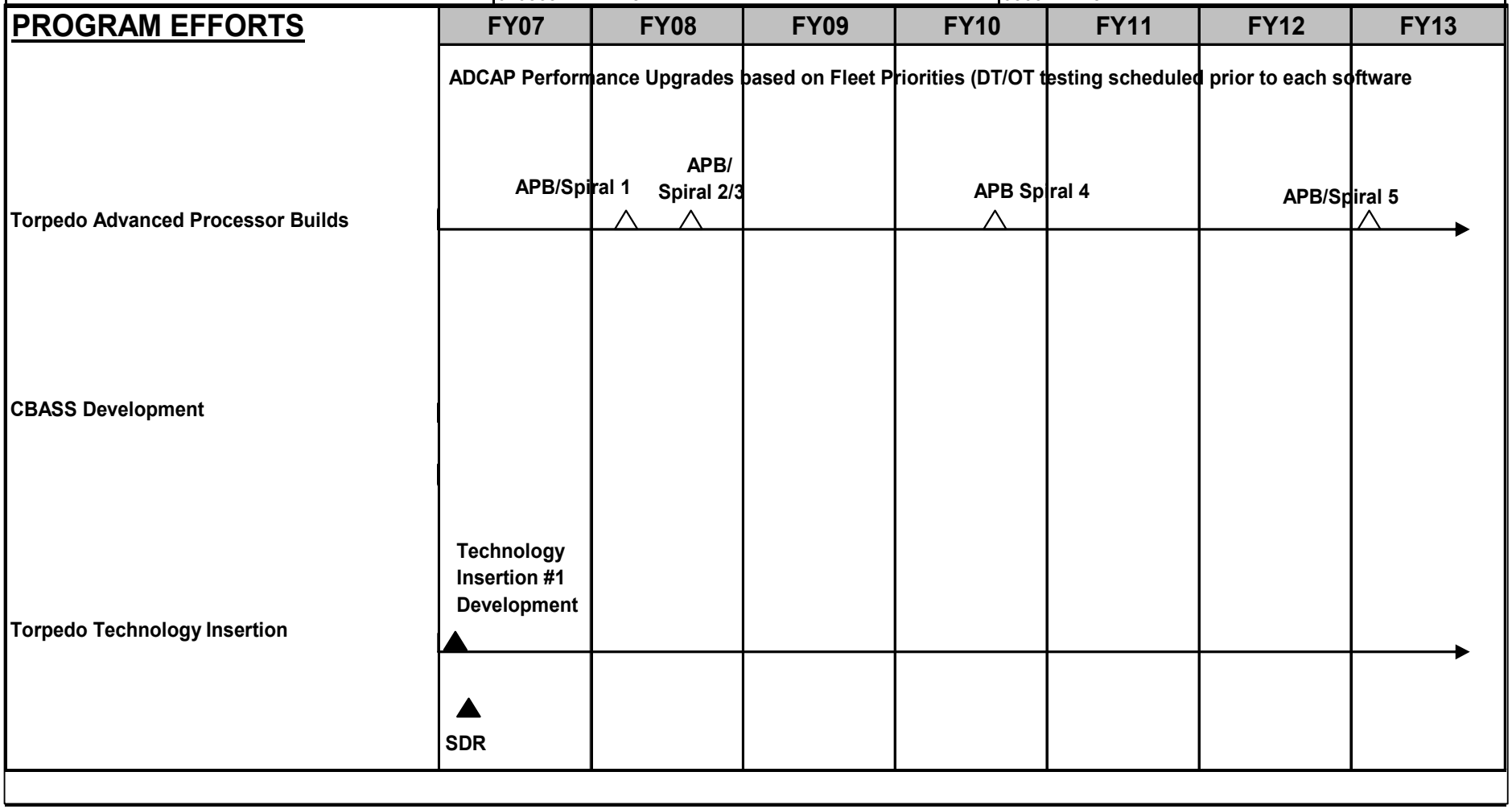
FY07- Conducted studies to support development of Heavyweight Torpedo Capability Development Document (CDD), Capability Production Document (CPD), and Technology Insertion Package. Began development of Technology Insertion #1 and support plan for Insensitive Munitions (IM) warhead documented in Strategic Plan. Improves shallow water performance and increases probability of kill.

FY08 - Continue development of Technology Insertion #1 and support plan for an IM warhead. Improves shallow water performance and increases probability of kill.

FY09 -No work being performed due to program adjustments.

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 7**		PROGRAM ELEMENT NUMBER AND NAME **0205632N/MK-48 ADCAP**					PROJECT NUMBER AND NAME **0366/MK 48 ADCAP**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Primary Hardware Development	WR	NUWC NPT	6.075	4.738	OCT-06	0.778	OCT-07	0.000	N/A	CONT	CONT	0.000
Primary Hardware Development	Various	Various	0.000	5.000	DEC-06	0.777	JAN-08	0.000	N/A	CONT	CONT	0.000
Subtotal Product Development			**6.075**	**9.738**		**1.555**		**0.000**		**CONT**	**CONT**	**0.000**
Remarks: Remarks: Various - TBD; Primary hardware development activity to be selected after evaluation of technologies from various vendors.												
Software Development	WR	NUWC NPT	3.625	3.622	OCT-06	3.079	OCT-07	1.960	OCT-08	CONT	CONT	0.000
Software Development	Various	Various	16.912	0.727	DEC-06	1.800	DEC-07	1.800	DEC-08	CONT	CONT	0.000
Integrated Logistics Support	WR	NUWC NPT	0.000	0.000	N/A	0.100	OCT-07	0.040	OCT-08	CONT	CONT	0.000
Systems Engineering	WR	NUWC NPT	9.497	6.015	OCT-06	2.903	OCT-07	3.162	OCT-08	CONT	CONT	0.000
Subtotal Support Costs			**30.034**	**10.364**		**7.882**		**6.962**		**CONT**	**CONT**	**0.000**
Remarks:												
Test & Evaluation	WR	NUWC NPT	1.707	1.258	OCT-06	3.639	OCT-07	4.552	OCT-08	CONT	CONT	0.000
Operational Test & Evaluation	WR	Operational Test Support	0.500	0.500	NOV-06	1.000	NOV-07	0.500	NOV-08	CONT	CONT	0.000
Modeling & Simulation	WR	NUWC NPT	1.450	1.208	OCT-06	2.190	OCT-07	2.564	OCT-08	CONT	CONT	0.000
Modeling & Simulation	C,CPFF	ARL / PSU	0.893	0.650	DEC-06	0.800	DEC-07	0.800	DEC-08	CONT	CONT	0.000
Subtotal Test and Evaluation			**4.550**	**3.616**		**7.629**		**8.416**		**CONT**	**CONT**	**0.000**
Remarks:												
Program Management Support	Various	Alion Science	0.451	0.451	MAY-07	0.451	OCT-07	0.451	OCT-08	CONT	CONT	0.000
Travel	WR	NAVSEA	0.065	0.045	MAY-07	0.050	OCT-07	0.050	OCT-08	CONT	CONT	0.000
Overhead			0.120	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	0.000
Subtotal Management Services			**0.636**	**0.496**		**0.501**		**0.501**		**CONT**	**CONT**	**0.000**
Remarks:												
Total Cost			**41.295**	**24.214**		**17.567**		**15.879**		**CONT**	**CONT**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 7**	PROGRAM ELEMENT NUMBER AND NAME **0205632N/MK-48 ADCAP**	PROJECT NUMBER AND NAME **0366/MK 48 ADCAP**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 7**	PROGRAM ELEMENT NUMBER AND NAME **0205632N/MK-48 ADCAP**			PROJECT NUMBER AND NAME **0366/MK 48 ADCAP**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Torpedo Advanced Processor Build							
Software Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Software Delivery		2Q-4Q		4Q			1Q
Torpedo Technology Insertion							
Study Phase/System Development	1Q-4Q	1Q-4Q			1Q-4Q	1Q-4Q	1Q-4Q
System Design Review (SDR)	1Q						
Developmental Testing						3Q-4Q	1Q-2Q
Development/Operating Testing							3Q-4Q

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 7**	PROGRAM ELEMENT NUMBER AND NAME **0205632N/MK-48 ADCAP**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
9999/Torpedo Post-Launch Communications System	0.000	1.595	0.000
RDT&E Articles Quantity	0	0	0

Torpedo Post-Launch Communications System Congressional add funds the MK-48 Heavyweight Torpedo (HWT) Post-Launch Communication System. This project will include evaluation of innovative flex-hose/guidance wire concepts using hydrodynamic computational simulation models, as well as fabrication, test and evaluation of prototype hardware to demonstrate compliance with Fleet requirements. higher bandwidth post-launch communication technologies will also be developed, tested and evaluated, and a new flex-hose will be designed. The new flex-hose concept is required to provide high reliability operation over the entire speed and depth operating envelope of the submarine including shallow water, near bottom engagements.

	FY 2007	FY 2008	FY 2009
9999/Digital Data for Weapons System Readiness	0.000	0.790	0.000
RDT&E Articles Quantity	0	0	0

Digital Data for Weapons System Readiness Congressional add funds for the MK-48 ADCAP Heavyweight Torpedo (HWT). This program will develop secure data sharing, analysis, and collaboration methodologies and tools for Heavyweight Torpedo programs. These funds will be used to organize and facilitate collaborate projects between industry, governmental facilities, and academia in order to improve the use and sharing of digital data in order to increase overall weapon system readiness.