EXHIBIT R-2, RDT&E Budget Item Justification							DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4						R-1 ITEM NOMENCLATURE 0603254N, ASW SYSTEMS DEVELOPMENT		
COST ($ in Millions)	FY 2008	FY 2009	FY 2010					
Total PE Cost	20.640	36.885	16.585					
0490 AIRBORNE ACOUSTIC INTELLIGENCE	3.582	3.732	3.562					
1292 ADV ASW SENSORS & PROC	3.732	7.184	10.069					
3222 ADVANCED HIGH ALTITUDE ASW FOR P-8			2.954					
9177 EPAS	6.552	9.660						
9347 CLAYMORE MARINE	2.887	4.940						
9999 CONGRESSIONAL ADD	3.887	11.369						

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

0490. In January 2008, OPNAV changed 0490 title from Project Beartrap to Airborne Acoustic Intelligence (AAI). The mission of AAI (CNO Project K-0416) is to provide Sound Pressure Level (SPL) quality recordings of targets of interest and an associated new technology, rapid prototyping mechanism for the application of state-of-the-art collection sensors. The program will develop and rapidly deploy new technology concepts in hardware and software to effectively address emerging littoral threats and to improve the present Undersea Warfare capability in suport of Sea Shield/Sea Trial Initiatives. AAI also provides a measurement analysis capability to reconstruct, analyze, and develop active and target strength measurement validation. The AAI data collection program provides passive and active acoustic and non-acoustic data essential for the design and development o environmental models, sensors, weapons, software algorithms, and tactical decision aids. AAI employs developmental and prototypical hardware installed in uniquely configured ASW aircraft to collect data of interest, and specially configured ground support facilities to conduct reconstruction and analysis of this data. AAI includes calibrated recording systems, advanced detection and tracking systems, special sensors, advanced processing systems and techniques and specially derived operational tactics.

1292. This program provides Anti-Submarine Warfare (ASW) platform effectiveness through development of advanced hardware and software associated with airborne acoustic systems. This includes sensors, processing, post-processing, data recording and display capabilities to address regional threat scenarios against conventionally and nuclear powered submarines. Key objectives are platform accommodations of advanced active and passive sensors, improved detection, classification, localization, tracking, and increased capacity and flexibility to handle multi-sensor data loads. Programs being funded during the FYDP will investigate technologies such as: Over the Horizon (OTH) Communications, Distributed Netted Sensors, exploitation of forward scatter, transient signals, and source and receiver improvement technologies that will enhance passive and Multi-static Activ Sensor Systems capabilities. Other programs being funded during the FYDP will provide for the development of persistent tactical search technologies that will allow transition to the localization and attack phase in all operationally relevant environments. In addition, the program will provide for the development and subsequent experimentation, including data collection and engineering measurement, of Multi-static Active (MSA) sources and receivers with the associated USQ-78B (series) processor.

3222. The objective of this project is to develop the capability for precision standoff delivery of sonobuoys from high altitude in order to improve tactical flexibility and mission performance of ASW aircraft. Current NAVAIR SBIRs are exploring promising technologies and are assessing the feasibility and practicality of proposed solutions for the precision placement of sonobuoys. This program will leverage SBIR technology to refine system concepts and to conduct field experiments and tests to evaluate technology solutions and assess their performance, cost, and producibility. Pending successful demonstration of precision placement technology, design modifications to current sonobuoy sensors will be matured and prototyped for qualification and testing leading to transition into P-8A.

9177. The objective of the Electro-optic Passive ASW Sensor (EPAS) program is to 1) demonstrate the concept that an integrated suite of non-acoustic sensors will provide an effective real time, day and night air ASW detection, localization and tracking capability in acoustically challenging shallow regions and deep water areas of uncertainty (AOU). 2) develop and demonstrate a cross platform non-acoustic system for fixed wing, helicopter, aerostat, and unmanned aerial vehicle ASW platforms. Navy funding for FY07-09 supports the development, integration, and demonstration testing of four (4) second generation prototype EPAS systems (EPAS/Joint Multi-Mission Electro-optic System (JMMES)) with algorithm based integrated sensor operation and ASW automatic target recognition/operator cueing software modules. The EPAS technology and ASW mission module software has been leveraged to develop multi-mission capability for other targets of Naval interest including maritime and overland surface warfare, maritime inderdiction operations, mine counter measures in a FY07 new start Joint Capability Technology Demonstration (JCTD) sponsored by the Deputy Undersecretary of Defense for Acquisition, Technology and Logistics.

Congressional add 9D16A In Buoy Processor for TASS is listed under PE 0603216N in the controls, however, 9D16A is executed under PE 0603254N.

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4	R-1 ITEM NOMENCLATURE 0603254N, ASW SYSTEMS DEVELOPMENT

B. PROGRAM CHANGE SUMMARY

Funding:	FY 2008	FY 2009	FY 2010
Previous President's Budget:	20.378	28.799	13.761
Current President's Budget:	20.640	36.885	16.585
Total Adjustments	0.262	8.086	2.824

Summary of Adjustments			
Congressional Rescissions			
Congressional Adjustments		8.187	
SBIR/STTR/FTT Assessments	-0.219		
Program Adjustments	0.481		2.831
Rate/Misc Adjustments		-0.101	-0.007
Subtotal	0.262	8.086	2.824

Schedule:

0490. First article decrease in Target Strength processor deliveries in FY10 from 2 to 1. The host for active Target Strength Processing is TAPS. Planned upgrades to TAPS are now included in the Target Strength Processor Product and are combined as a single product.

1292. Added OTH Communications performance assessment FY09. Added Software Development to reflect S/W timeline. Added deliveries thru the FYDP. Due to funding reduction in 1Q/09, unable to participate in scheduled experiments/exercises and unable to procure planned 200 test articles.

3222. Schedule added to reflect development of system concepts and technology demonstration during the FYDP.

9177. Removed Decision milestone from 1Q/FY09; transition deferred to 3Q/FY10. Extended Flight Testing on Commercial and Research Test A/C from 3Q/09 to 4Q/09.

9347. Added deliveries in 3Q/08.

Technical:
0490. Defined Active Measurement Validation as a separate cost category for improved programmatic tracking. Active Measurement Validation is an output product of the Active Target Strength (T.S.) project.

EXHIBIT R-2a, RDT&E Project Justification									DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603254N, ASW SYSTEMS DEVELOPMENT			PROJECT NUMBER AND NAME 0490, AIRBORNE ACOUSTIC INTELLIGENCE					
COST ($ in Millions)	FY 2008	FY 2009	FY 2010						
0490 AIRBORNE ACOUSTIC INTELLIGENCE	3.582	3.732	3.562						
RDT&E Articles Qty	3	2	2						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The mission of Airborne Acoustic Intelligence (AAI) (CNO Project K-0416) is to provide SPL quality recordings of targets of interest and an associated new technology, rapid prototyping mechanism for the application of state-of-the-art collection sensors. The program will develop and rapidly deploy new technology concepts in hardware and software to effectively address emerging littoral threats and to improve the present Undersea Warfare capability in support of Sea Shield/Sea Trial Initiatives. AAI also provides a measurement analysis capability to reconstruct, analyze and develop active target strength measurement validation. The AAI data collection program provides passive and active acoustic and non-acoustic data essential for the design and development of environmental models, sensors, weapons, software algorithms, and tactical decision aids. AAI employs developmental and prototypical hardware installed in uniquely configured ASW aircraft to collect data of interest, and specially configured ground support facilities to conduct reconstruction and analysis of this data. AAI includes calibrated recording systems, advanced detection and tracking systems, special sensors, advanced processing systems and techniques and specially derived operational tactics. The 7 RDT&E articles consist of aircraft calibration units, Sound Pressure Level (SPL) collection suites, and post mission processors that will support the collection mission.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Systems Engineering / Aircraft Mods

Commence Active Acoustic program

	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost	2.812	2.582	2.412
RDT&E Articles Qty	3	2	2

Engineering to support SPL Recording. Post mission processor upgrade and engineering to support aircraft calibration unit enhancements for active target strength. Engineering development of Target Strength processing and prototype processor.

Data Collection and Analysis

	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost	.770	.750	.750
RDT&E Articles Qty			

Data collection support at Operational Wings. Ongoing collection of high interest acoustic and non-acoustic data in support of Measurement/Measuring and Signature Intelligence (MASINT)/Office of Naval Intelligence (ONI) threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conduct airborne special operations support. Essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development.

Active Measurement Validation

	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost		.400	.400
RDT&E Articles Qty			

Active Measurement Validation of targets of interest. Provides the acoustic analysis of echo characterization (which includes: signal excess (SE) measurements, peak frequency (PF), trend analysis and pulse duration measurements) and target strength.

C. OTHER PROGRAM FUNDING SUMMARY: FY 2008 FY 2009 FY 2010

Not Applicable

D. ACQUISITION STRATEGY:

Airborne Acoustic Intelligence (AAI) is a CNO Special Project. The included technology developments are primarily in-house with contractor participation through existing vehicles.

Exhibit R-3 Cost Analysis (page 1)		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT	PROJECT NUMBER AND NAME 0490, Airborne Acoustic Intelligence

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
PRODUCT DEVELOPMENT												
Active Measurement Validation	WX	NAWCAD, PATUXENT RIVER, MD		.400	10/08	.400	10/09					
Ancillary Hdw Development	WX	NAWCAD, PATUXENT RIVER, MD	4.069	.750	10/08	.750	10/09					
Systems Eng	WX	NAWCAD, PATUXENT RIVER, MD	68.388	2.582	10/08	2.412	10/09					
SUBTOTAL PRODUCT DEVELOPMENT			72.457	3.732		3.562						

Remarks:

SUPPORT												
SUBTOTAL SUPPORT												

Remarks:

TEST & EVALUATION												
SUBTOTAL TEST & EVALUATION												

Remarks:

MANAGEMENT												
Travel	TO	NAVAIR, PATUXENT RIVER MD	.095									
SUBTOTAL MANAGEMENT			.095									

Remarks:

Total Cost			72.552	3.732		3.562						

Remarks:

EXHIBIT R4, Schedule Profile
Data Collection and Analysis/ Prototype & Installation

DATE: May 2009

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N / BA-4	0603254N, ASW SYSTEMS DEVELOPMENT	0490, Airborne Acoustic Intelligence

Fiscal Year	FY 2008				FY 2009				FY 2010			
	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones												
Systems Engineering P-3 Avionics Suite								△			(1) ▽	
Tactical Acoustic Processor(TAPS)	△	(1)				(1)						
T.S Processor Development/Prototype	△			(2)			(1)				(1)	
Test & Evaluation Milestones												
Production Milestones												
Product Development Data Collection/Analysis												
Deliveries												
P-3 Avionics											(1)	
Tactical Acoustic Processor	(1)					(1)						
T.S. Processor				(2)			(1)				(1)	

Exhibit R-4a, Schedule Detail Data Collection and Analysis/ Prototype & Installation					DATE: May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 0490, AIRBORNE ACOUSTIC INTELLIGENCE			
Schedule Profile	FY 2008	FY 2009	FY 2010					
Sys. Eng. Avionics Suite			1Q-4Q					
Sys. Eng. Tactical Acoustic Processor (TAPS)	1Q-4Q	1Q-4Q	1Q-4Q					
Target Strength Processor Dev't/Prototype	1Q-4Q	1Q-4Q	1Q-4Q					
Data Collection and Analysis	1Q-4Q	1Q-4Q	1Q-4Q					
Deliveries								
P-3 Avionics			3Q					
Tactical Acoustic Processor	2Q	2Q						
T.S. Processor	4Q	3Q	3Q					

EXHIBIT R-2a, RDT&E Project Justification			DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603254N, ASW SYSTEMS DEVELOPMENT	PROJECT NUMBER AND NAME 1292, ADV ASW SENSORS & PROC	

COST ($ in Millions)	FY 2008	FY 2009	FY 2010					
1292 ADV ASW SENSORS & PROC	3.732	7.184	10.069					
RDT&E Articles Qty	100	200	300					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program provides Anti-Submarine Warfare (ASW) platform effectiveness through development of advanced hardware and software associated with airborne acoustic systems. This includes sensors, processing, post-processing, data recording and display capabilities to address regional threat scenarios against conventional and nuclear powered submarines. Key objectives are platform accommodations of advanced active and passive sensors, improved detection, classification, localization, tracking, and increased capacity and accommodations to handle multi-sensor data loads. Programs being funded during the FYDP will investigate technologies such as: Over the Horizon (OTH) Communications, Distributed Netted Sensors, exploitation of forward scatter, transient signals, and source and receiver improvement technologies that will enhance passive and Multi-Static Active Sensor Systems capabilities. Other programs being funded during the FYDP will provide for the development of persistent tactical search technologies that will allow transition to the localization and attack phase in a operationally relevant environments. In addition, the program will provide for the development and subsequent experimentation, including data collection and engineering measurement, of Multi-Static Active sources and receivers with the associated USQ-78B (series) processor. The 600 test articles, which consist of passive/active sensors and associated processors, will support at-sea trials and experiments.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

System performance assessments	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost	3.732	7.184	10.069
RDT&E Articles Qty	100	200	300

System performance assessments for Multi-Static Active (Coherent) ASW algorithms and system enhancements. System performance assessment for Multi-Static Active (Coherent) source and receivers technologies. Due to a $3.0M reduction in 1Q/09 for Program Growth (Issue #74048), unable to participate in scheduled experiments/exercises and unable to procure planned 200 test articles.

C. OTHER PROGRAM FUNDING SUMMARY: FY 2008 FY 2009 FY 2010

Not Applicable

D. ACQUISITION STRATEGY:

The included technology developments are primarily in-house with contractor participation through existing vehicles.

Exhibit R-3 Cost Analysis (page 1)			DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME	
RDT&E,N / BA-4	0603254N, ASW SYSTEMS DEVELOPMENT	1292, ADV ASW SENSORS & PROC	

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
PRODUCT DEVELOPMENT												
Primary Hdw Development	VARIOUS	VARIOUS		.500	11/08	.300	11/09					
SUBTOTAL PRODUCT DEVELOPMENT				.500		.300						

Remarks:

SUPPORT												
Software Development	WX	NAWCAD, PATUXENT RIVER, MD	1.000	2.000	11/08	2.425	11/09					
Studies & Analyses	WX	NAWCAD, PATUXENT RIVER, MD	.500	1.446	11/08	4.681	11/09					
SUBTOTAL SUPPORT			1.500	3.446		7.106						

Remarks:

TEST & EVALUATION												
Dev Test & Eval	VARIOUS	VARIOUS	14.431	1.000	11/08	.500	11/09					
SUBTOTAL TEST & EVALUATION			14.431	1.000		.500						

Remarks:

MANAGEMENT												
Contractor Eng Sup	VARIOUS	VARIOUS	5.677									
ENG & TECH SVCS (NON-FFRDC)	VARIOUS	VARIOUS	2.172	.232	11/08	.310	11/09					
Government Eng Sup	WX	NAWCAD, PATUXENT RIVER, MD	52.019	1.931	11/08	1.773	11/09					
Travel	TO	VARIOUS	.090	.075	11/08	.080	11/09					
SUBTOTAL MANAGEMENT			59.958	2.238		2.163						

Remarks:

Total Cost			75.889	7.184		10.069						

Remarks:

EXHIBIT R4, Schedule Profile
ADV ASW SENSORS & PROC

DATE: May 2009

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E,N / BA-4	0603254N, ASW SYSTEMS DEVELOPMENT	1292, ADV ASW SENSORS & PROC

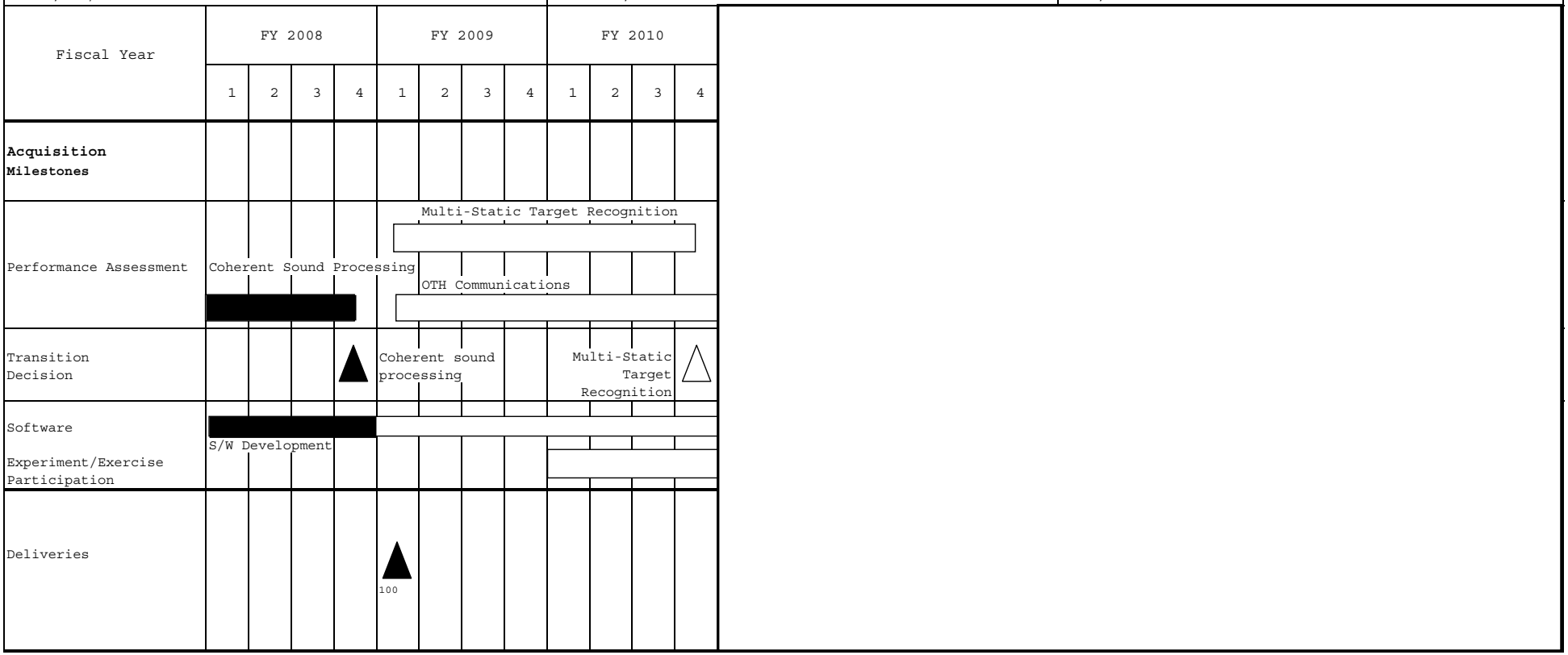

Exhibit R-4a, Schedule Detail ADV ASW SENSORS & PROC								DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 1292, ADV ASW SENSORS & PROC			
Schedule Profile	FY 2008	FY 2009	FY 2010					
Performance Assessment	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Transition Decision	4Q		4Q					
Software Development	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Experiment/Exercise Participation		1Q - 4Q	1Q - 4Q					
Deliveries		1Q	1Q					

EXHIBIT R-2a, RDT&E Project Justification								DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603254N, ASW SYSTEMS DEVELOPMENT			PROJECT NUMBER AND NAME 3222, ADVANCED HIGH ALTITUDE ASW FOR P-8				
COST ($ in Millions)	FY 2008	FY 2009	FY 2010					
3222 ADVANCED HIGH ALTITUDE ASW FOR P-8			2.954					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The objective of this project is to develop the capability for precision standoff delivery of sonobuoys from high altitude in order to improve tactical flexibility and mission performance of ASW aircraft. Current NAVAIR SBIRs are exploring promising technologies and are assessing the feasibility and practicality of proposed solutions for the precision placement of sonobuoys. This program will leverage SBIR technology to refine system concepts and to conduct field experiments and tests to evaluate technology solutions and assess their performance, cost, and producibility. Pending successful demonstration of precision placement technology, design modifications to current sonobuoy sensors will be matured and prototyped for qualification and testing leading to transition into P-8A.

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

Provide precision delivery of sonobuoys	FY 2008	FY 2009	FY 2010
Accomplishments / Effort / Sub-total Cost			2.954
RDT&E Articles Qty			

This effort supports improvement in AIR ASW capability by providing for precision delivery of sonobuoys from Maritime Patrol Aircraft at high altitude. Various concepts will be analyzed. Prototype methods of sonobuoy delivery will be explored in order to achieve accurate placement from high altitudes. Technology Readiness Level will be improved to support planning for transition to acquisition.

C. OTHER PROGRAM FUNDING SUMMARY: FY 2008 FY 2009 FY 2010

Not Applicable

D. ACQUISITION STRATEGY:

Various sole source and/or competitive R&D contracts to develop precision placement technologies for sonobuoys. Develop modifications to incorporate capability into current sonobuoy sensors and integration into P-8A as the lead aircraft.

Exhibit R-3 Cost Analysis (page 1)			DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT	PROJECT NUMBER AND NAME 3222 ADVANCED HIGH ALTITUDE ASW FOR P-8	

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
PRODUCT DEVELOPMENT												
Primary Hardware Development	VARIOUS	VARIOUS										
A/C HW/SW Integration	VARIOUS	VARIOUS										
SUBTOTAL PRODUCT DEVELOPMENT												

Remarks:

SUPPORT												
Program Documentation	VARIOUS	VARIOUS										
Studies and Analysis	WX	NAWCAD, PATUXENT RIVER, MD				.700	11/09					
Studies and Analysis	VARIOUS	VARIOUS				1.200	11/09					
SUBTOTAL SUPPORT						1.900						

Remarks:

TEST & EVALUATION												
Field Tests	WX	NAWCAD, PATUXENT RIVER, MD										
Field Tests	VARIOUS	VARIOUS										
SUBTOTAL TEST & EVALUATION												

Remarks:

MANAGEMENT												
Contractor Eng Sup	VARIOUS	VARIOUS				.150	11/09					
ENG & TECH SRVC (NON-FFRDC)	VARIOUS	VARIOUS				.150	11/09					
Government Eng Sup	WX	NAWCAD, PATUXENT RIVER, MD				.739	11/09					
Travel	VARIOUS	TBD				.015	11/09					
SUBTOTAL MANAGEMENT						1.054						

Remarks:

Total Cost						2.954						

Remarks:

EXHIBIT R4, Schedule Profile
ADVANCED HIGH ALTITUDE ASW FOR P-8

DATE: May 2009

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	**0603254N, ASW SYSTEMS DEVELOPMENT**	3222, ADVANCED HIGH ALTITUDE ASW FOR P-8

Fiscal Year	FY 2008				FY 2009				FY 2010			
	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones	**Precision Placement of Sonobuoys for HAASW is a Technology Development, Non ACA project.**											
Contract Awards									△ Studies			
Trade Studies			Study and analyze concept options									
HW/SW Product Development												
Experimentation & Tech Demos												
Transtion Decisions												
Deliveries												

Exhibit R-4a, Schedule Detail **ADVANCED HIGH ALTITUDE ASW FOR P-8**					DATE: May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-4	PROGRAM ELEMENT 0603254N, ASW SYSTEMS DEVELOPMENT				PROJECT NUMBER AND NAME 3222, ADVANCED HIGH ALTITUDE ASW FOR P-8			
Schedule Profile	FY 2008	FY 2009	FY 2010					
Study Contracts			1Q					
Technology Development Contracts								
Trade Studies			1Q-4Q					
HW/SW Product Development								
Experimentation and Tech Demo								
Transition Decisions								
Deliveries								