Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	47.506	23.497	21.673	0.000	21.673	34.542	2.378	2.848	2.843	Continuing	Continuing
1704: *Undersea Warfare*	28.757	21.904	21.673	0.000	21.673	34.542	2.378	2.848	2.843	Continuing	Continuing
9999: *Congressional Adds*	18.749	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	52.759

A. Mission Description and Budget Item Justification

The Anti-Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Program Element (PE) 0603553N has been designated to support emerging multi-static technologies, and the CNO's ASW Initiative. Efforts focus on resolution of technical issues associated with providing capability against the FY09 and beyond threat, with emphasis on shallow water/ littoral areas, deep water Undersea Warfare (USW), and demonstration and validation of USW concepts and technology. Key technology areas include active sonar transmissions; advanced signal and data processing; active sonar classification; towed and hull arrays; transducer technology; and periscope detection techniques. Starting in FY07, the CNO's ASW Initiative (formerly known as Task Force ASW) included the development of new and innovative technologies. Efforts associated with these technologies include design, development, integration, and testing of future undersea superiority systems. These systems include distributed sensor systems; Vertical Line Array; static active buoy fields; submarine countermeasures; compact rapid-effect weapons; longer-range radio systems; multi-static sonar; and multi-sensor data fusion, including multi-platform data fusion and net-centric USW concepts.

Project Unit 9999 is comprised of Congressional Adds for Small Business Technology Insertion (FY09), Automated Readiness Measurement Systems (FY09) and Low Frequency Active Towed Sonar Organic ASW Capability (FY10).

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603553N: *Surface ASW*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	48.189	21.995	0.000	0.000	0.000
Current President's Budget	47.506	23.497	21.673	0.000	21.673
Total Adjustments	-0.683	1.502	21.673	0.000	21.673
• Congressional General Reductions		-0.098			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		1.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.032	0.000			
• SBIR/STTR Transfer	-0.652	0.000			
• Program Adjustments	0.000	0.000	21.673	0.000	21.673
• Rate/Misc Adjustments	0.001	0.000	0.000	0.000	0.000

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Low Frequency Active Towed Sonar Organic ASW Capability*	0.000	1.593
Congressional Add: *Automated Readiness Measurement System*	2.792	0.000
Congressional Add: *SMALL BUSINESS INSERTION*	15.957	0.000
Congressional Add Subtotals for Project: 9999	18.749	1.593
Congressional Add Totals for all Projects	18.749	1.593

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704: *Undersea Warfare*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1704: *Undersea Warfare*	28.757	21.904	21.673	0.000	21.673	34.542	2.378	2.848	2.843	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The CNO's ASW initiative is a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. The CNO's ASW initiative will coordinate the development of technologies which move beyond incremental or marginal improvements in ASW effectiveness. The CNO's vision of "fundamentally changing the way ASW is currently conducted to render the enemy submarine irrelevant against U.S. and coalition forces", necessitates a change in the calculus of how the US Navy conducts ASW. Central to the CNO's ASW initiatives achieving the CNO's vision are several innovative approaches which include using the art-of-the-technologically-possible; minimizing force-on-force; reducing the ASW end-to-end time line; supporting rapid maneuver; developing off-board and distributed ASW detection systems; and finding innovative weapons solutions. To achieve these key approaches, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. The most promising technology concepts from government laboratories, university research centers, and industry are developed to the point where these technologies can be tested in at-sea experiments, with the objective of transitioning those which demonstrate exceptional capability to programs of record.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
CNO ASW Initiative	28.614	21.904	21.673	0.000	21.673
FY 2009 Accomplishments: Active Clutter Reduction algorithms were demonstrated in real-time during SHAREM 159 and SHAREM 160. Five algorithms were selected for transition into the AN/SQQ-89A(V)15 ACB-11 baseline. A development contract for Continuous Active Sonar was awarded, an at-sea demonstration was conducted and efforts to determine the feasibility of developing a variable depth sonar were initiated.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704: *Undersea Warfare*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue development of continuous active sonar and variable depth sonar for surface combat systems and continued studies of new acoustic, non-acoustic, and off-board sensors and independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies. *FY 2011 Base Plans:* Continue development of continuous active sonar and variable depth sonar for surface combat systems and continued studies of new acoustic, non-acoustic, and off-board sensors and independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies.					
DAWDF Defense Acquisition Workforce Development Fund. *FY 2009 Accomplishments:* N/A	0.143	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	28.757	21.904	21.673	0.000	21.673

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

E. Performance Metrics

Not applicable.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704: *Undersea Warfare*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi-Static Sonar Development	WR	NUWC Newport, RI	1.524	0.000		0.000		0.000		0.000	0.000	1.524	Continuing
Multi-Static Sonar Development	C/CPFF	AAC NY	0.067	0.000		0.000		0.000		0.000	0.000	0.067	Continuing
Multi-Static Sonar Development	WR	NAWC Patuxent River, MD	0.230	0.000		0.000		0.000		0.000	0.000	0.230	Continuing
Multi-Static Sonar Development	C/CPFF	Adaptive Methods VA	1.003	0.000		0.000		0.000		0.000	0.000	1.003	Continuing
Multi-Static Sonar Development	C/CPFF	JHU/APL MD	0.017	0.000		0.000		0.000		0.000	0.000	0.017	Continuing
Multi-Static Sonar Development	WR	SPAWAR San Diego, CA	0.541	0.000		0.000		0.000		0.000	0.000	0.541	Continuing
		Subtotal	3.382	0.000		0.000		0.000		0.000	0.000	3.382	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NUWC Newport, RI	3.472	0.000		0.000		0.000		0.000	0.000	3.472	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704: *Undersea Warfare*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC Patuxent River, MD	0.343	0.000		0.000		0.000		0.000	0.000	0.343	Continuing
Developmental Test & Evaluation	C/CPFF	BBN VA	0.250	0.000		0.000		0.000		0.000	0.000	0.250	Continuing
Developmental Test & Evaluation	C/CPFF	AAC NY	1.067	0.000		0.000		0.000		0.000	0.000	1.067	Continuing
Developmental Test & Evaluation	WR	NUWC Keyport, WA	0.259	0.000		0.000		0.000		0.000	0.000	0.259	Continuing
Developmental Test & Evaluation	WR	NSWC Dahlgren, VA	0.265	0.000		0.000		0.000		0.000	0.000	0.265	Continuing
Developmental Test & Evaluation	C/CPFF	UT/ARL TX	1.844	0.000		0.000		0.000		0.000	0.000	1.844	Continuing
Developmental Test & Evaluation	MIPR	U.S. ARMY MITRE, MA	0.060	0.000		0.000		0.000		0.000	0.000	0.060	Continuing
Developmental Test & Evaluation	WR	NRL DC	0.537	0.000		0.000		0.000		0.000	0.000	0.537	Continuing
Developmental Test & Evaluation	WR	NSWC Carderock, MD	0.672	0.000		0.000		0.000		0.000	0.000	0.672	Continuing
Developmental Test & Evaluation	WR	NSMA VA	0.907	0.000		0.000		0.000		0.000	0.000	0.907	Continuing
Technology Development	C/CPFF	JHU/APL MD	15.878	7.409	Dec 2009	6.653	Dec 2010	0.000		6.653	Continuing	Continuing	Continuing
Technology Development	WR	NUWC Newport, RI	16.957	5.936	Oct 2009	5.784	Dec 2010	0.000		5.784	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704: *Undersea Warfare*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
At-Sea Test/Experiment	WR	ONR 3 Phoenix, VA	5.500	0.000		0.000		0.000		0.000	0.000	5.500	Continuing
Enhanced Data Collection (SSEMP)	C/CPFF	JHU/APL MD	4.462	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Enhanced Data Collection (SSEMP)	C/CPFF	UT/ARL TX	2.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Technology Development	C/CPFF	Northrop Grumman Corp. VA	4.684	0.000		0.000		0.000		0.000	0.000	4.684	Continuing
Technology Development	C/CPFF	Adaptive Methods VA	2.785	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Technology Development	C/CPFF	AAC NY	1.067	0.000		0.000		0.000		0.000	0.000	1.067	Continuing
Technology Development	C/CPFF	Alion Sciences VA	3.500	2.000	Jan 2010	2.200	Dec 2010	0.000		2.200	Continuing	Continuing	Continuing
Technology Development	C/CPFF	Lockheed Martin ISS	0.610	2.000	Dec 2009	2.862	Dec 2010	0.000		2.862	0.000	5.472	Continuing
Technology Development	C/CPFF	UT/ARL TX	2.209	2.699	Dec 2009	2.214	Dec 2010	0.000		2.214	0.000	7.122	Continuing
Technology Development	WR	NUWC Keyport, WA	0.260	0.260	Oct 2009	0.260	Oct 2010	0.000		0.260	0.000	0.780	Continuing
Technology Development	WR	NSWC Carderock, MD	0.706	0.400	Oct 2009	0.500	Oct 2010	0.000		0.500	0.000	1.606	Continuing
Technology Development	MIPR	U.S. ARMY MITRE, MA	0.000	0.200	Jan 2010	0.200	Nov 2010	0.000		0.200	0.000	0.400	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704: *Undersea Warfare*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Development	C/CPFF	EG&G VA	1.050	0.000		0.000		0.000		0.000	0.000	1.050	Continuing
Technology Development	C/CPFF	L-3 Communications VA	3.000	0.000		0.000		0.000		0.000	0.000	3.000	Continuing
Technology Development	C/CPFF	VAR VAR*	3.409	0.000		0.000		0.000		0.000	0.000	3.409	Continuing
		Subtotal	77.753	20.904		20.673		0.000		20.673			

Remarks

*Consists of multiple performing activities with funding for each not greater than $1 million per year.

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems MD	1.661	0.950	Jan 2010	0.950	Nov 2010	0.000		0.950	0.000	3.561	Continuing
Program Management Support	C/CPFF	Stanley and Associates VA	0.350	0.000		0.000		0.000		0.000	0.000	0.350	Continuing
Travel	WR	NAVSEA PEO IWS 5	0.150	0.050	Oct 2009	0.050	Oct 2010	0.000		0.050	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704: *Undersea Warfare*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		DC											
DAWDF	Various/ Various	Not Specified Not Specified	0.143	0.000		0.000		0.000		0.000	0.000	0.143	Continuing
		Subtotal	2.304	1.000		1.000		0.000		1.000			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	83.439	21.904		21.673		0.000		21.673			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704: *Undersea Warfare*

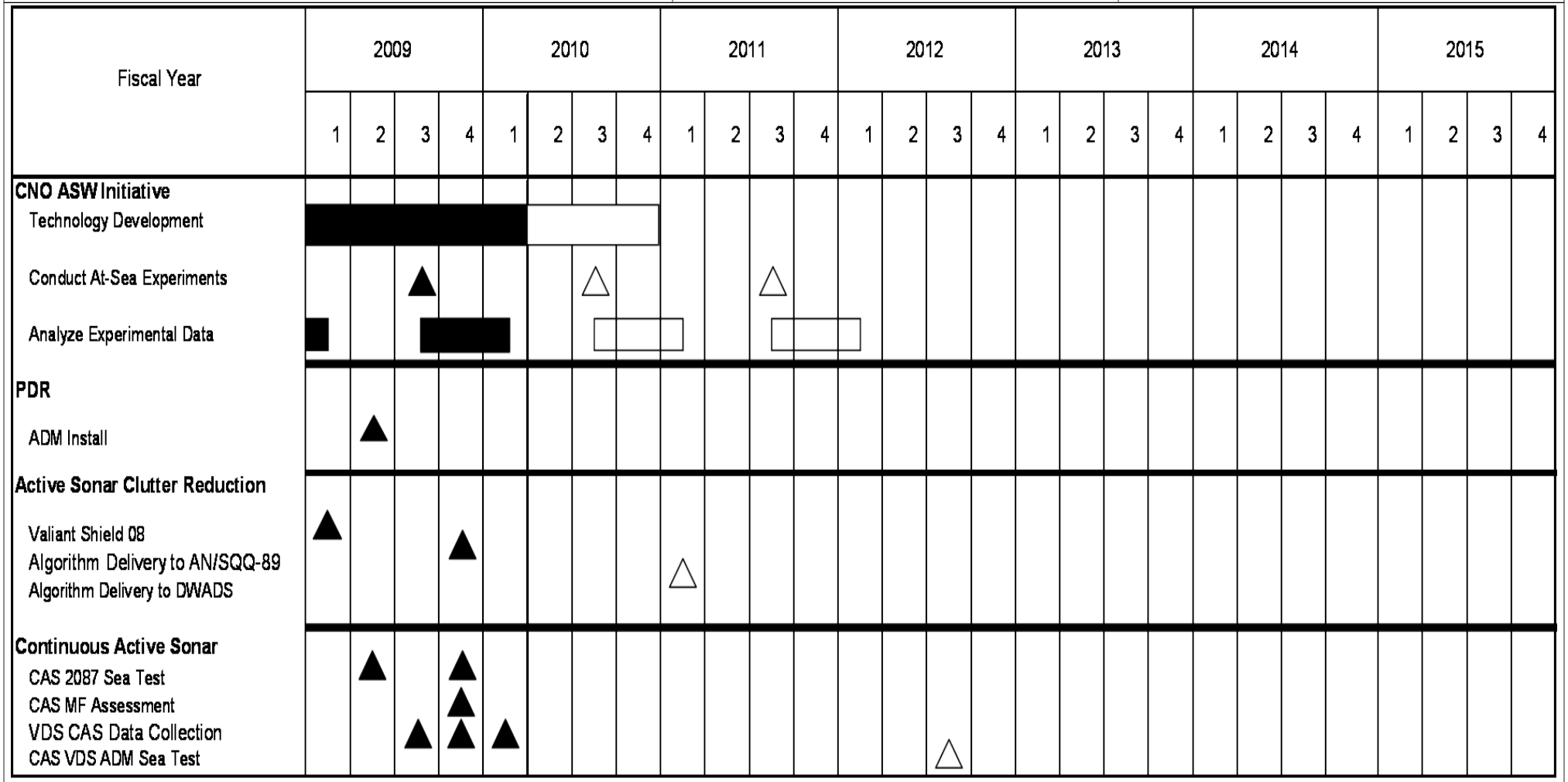

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603553N: *Surface ASW*	**PROJECT** 1704: *Undersea Warfare*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Technology Development	1	2009	4	2010
Conduct At-Sea Experiment (test promising technologies)	3	2009	3	2011
Analyze Experimental Data	1	2009	1	2012
ADM Install on CVN-73	2	2009	2	2009
Valiant Shield 08	1	2009	1	2009
Algorithm Delivery to AN/SQQ-89A(V)15	4	2009	4	2009
Algorithm Delivery to DWADS	1	2011	1	2011
CAS 2087 Sea Test	2	2009	4	2009
CAS MF Assessment	4	2009	4	2009
VDS CAS Data Collection	3	2009	1	2010
VDS CAS ADM Sea Test	3	2012	3	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	18.749	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	52.759
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Low Frequency Active Towed Sonar Organic ASW Capability *FY 2010 Plans:* FY10 Congressional Add - Project 10C108: Low Frequency Active Sonar Orgranic Anti-Submarine Warfare (ASW) capability improvement development.	0.000	1.593
Congressional Add: Automated Readiness Measurement System *FY 2009 Accomplishments:* 9809A - Automated Readiness Measurement System will develop a readiness assessment tool which will be fully integrated into the Undersea Warfare Decision Support System (USW-DSS) Build 3 and subsequent builds with a scalable, extensible, open Commercial Off-The-Shelf (COTS) architecture compliant with Common Surface Combatant Open Architecture (OA). ARMS will provide an objective assessment of readiness in multiple mission areas. The initial application will assess ASW mission areas and is being developed as a segment of USW-DSS. ARMS will provide a core application for the objective assessment of mission readiness, capable of dynamically configuring to ship class specific environments and systems. The ARMS tactical decision tool will provide the Commander with the	2.792	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
ability to evaluate alternative force deployment and assignments, considering own force material and operational readiness, in a dynamic tactical environment. ARMS total ownership costs will be minimized by developing a functional architecture that is compliant with OA initiatives, scalable and extensible, and maximizes reuse of functionality across multiple ship classes.		
Congressional Add: SMALL BUSINESS INSERTION *FY 2009 Accomplishments:* 9B69A - Small Business Technology Insertion will implement the cost-effective advantages gained through the Acoustic Rapid Commercial Off-The-Shelf Insertion/Advanced Processor Build Program (ARCI/APB) within the submarine community concept in other acquisition programs. Cost effective gains include modularity, rapid technology insertion, software re-use, improved manufacturing processes, and cost reductions. Navy Open Architecture (OA) doctrine calls for a standard-based, middleware solution to be used for data communication. Funds will be used to encourage the use of virtualization that will allow disparate systems to co-exist on a single computer, thus allowing shipboard computer rooms/processing centers to be smaller in size, consume less power, and provide more processing capability in a more efficient and effective way.	15.957	0.000
Congressional Adds Subtotals	18.749	1.593

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Adds.