

**CLASSIFICATION:****UNCLASSIFIED****EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION**

DATE

February 2008

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

**RD TEN/BA 4****0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS**

COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	10.169	14.806	10.212	10.353	10.598	10.808	11.024
0770 / Adv Sub Supp Equip Prog	4.756	4.215	4.369	4.462	4.573	4.662	4.754
1739 / Submarine Arctic W/F Development	5.413	5.504	5.843	5.891	6.025	6.146	6.270
9999 / CONGRESSIONAL ADDS	0.000	5.087	0.000	0.000	0.000	0.000	0.000

**A. MISSION DESCRIPTION:**

The Submarine Tactical Warfare Systems program element is comprised of the Advanced Submarine Support Equipment Program (ASSEP) and the Submarine Special Operations Support Program. The objective is to improve submarine operational effectiveness through the development and implementation of advanced Research and Development (R&D). Areas of improved operational effectiveness for Electronic Warfare Support (ES) and Imaging technologies include Threat Warning/Self Protection; Situational Awareness; and Intelligence, Surveillance, and Reconnaissance. A continuing need exists to improve these capabilities in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. The Submarine Arctic Warfare Development program responds to the increased threat of Naval activity in the Littorals and the continuing threat of submarine and surface ship activity in regions of the world through the development of advanced submarine R&D technology to provide improved operational capability in shallow water regions. Particular emphasis is placed in the areas of sonar operability and maintainability, Littoral operations, mine warfare, tactical surveillance, weapon utility and other submarine support missions. Efforts include assessment of combat system effectiveness, development of Arctic shallow water specific improvements for existing sonars and weapons, development of class specific Arctic operational guidelines and the testing of ice-capable submarine support structures. This program also provides the framework for various R&D programs to conduct Test and Evaluation in shallow water and Arctic regions.

**B. PROGRAM CHANGE SUMMARY:**

Funding:	FY 2007	FY 2008	FY 2009
FY 08 Pres Budget Controls	10.318	9.865	10.215
FY 09 Pres Budget Controls	10.169	14.806	10.212
Total Adjustments	-0.149	4.941	-0.003
Undistributed General Reductions	-0.149	-0.179	-0.003
Congressional Increases	0.000	5.120	0.000
Subtotal	-0.149	4.941	-0.003
Schedule: Not Applicable			
Technical: Not Applicable			

<b>CLASSIFICATION:</b>		<b>UNCLASSIFIED</b>					
<b>EXHIBIT R-2a, RDT&amp;E PROJECT JUSTIFICATION</b>					DATE February 2008		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RD TEN/BA 4</b>		<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>			<b>PROJECT NUMBER AND NAME</b> <b>0770/Adv Sub Supp Equip Prog</b>		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	4.756	4.215	4.369	4.462	4.573	4.662	4.754
RDT&E Articles Qty	0	0	0	0	0	0	0

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

A continuing need exists to improve submarine capabilities to improve safety of ship, survivability, and operational effectiveness in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine ES and imaging to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection and Joint Strike. The program is divided into three project categories: Threat Warning/Self Protection, Situational Awareness, and Intelligence, Surveillance and Reconnaissance. The Threat Warning/Self Protection project evaluates the vulnerability of submarine masts, periscopes and sensors to visual, radar, and infrared detection and evaluates the state of the art technology to implement periscope/mast engineering improvements to reduce counter detection threats. Both Situational Awareness and Intelligence, Surveillance, and Reconnaissance projects develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility demonstration models (FDMs) are developed, evaluated, and validated in the lab and through at-sea testing.

Threat Warning/Self Protection sub-projects include: Mast Signature Reduction (RCS and EO/IR), Laser Detection and Low Probability of Intercept (LPI) Receiver.

Situational Awareness sub-projects include: PATRIOT Automated Rangefinder (Phase B), Imaging Technologies, Optical Sensor Networks, Low Cost Expendable Sensor (LCES), Advanced Camera Technology (360 Degree Imaging System), Specific Emitter Identification (SEI), and LCES Payload improvements.

Intelligence, Surveillance and Reconnaissance sub-projects include: Alternate Communications Acquisition Direction Finding (CADF) Antenna Testing and Passive Surveillance Radar (PSR) At-Sea testing.

All programs funded in this project are non-acquisition category programs. Program plans and priorities are established by N87. The test articles identified consist of critical components that will be fully developed during engineering development into Engineering Development Models (EDMs).

ASSEP Programs will eventually be broken down into initial and research, for both Imaging and Electronic Warfare. An inclusive category will also be included for initiatives which will describe categories like "submarine sensors" which do not readily categorize into Imaging or Electronic Warfare.

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<b>EXHIBIT R-2a, RDT&amp;E PROJECT JUSTIFICATION</b>				DATE February 2008
APPROPRIATION/BUDGET ACTIVITY <b>RD TEN/BA 4</b>	PROGRAM ELEMENT NUMBER AND NAME <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>	PROJECT NUMBER AND NAME <b>0770/Adv Sub Supp Equip Prog</b>		
<b>B. ACCOMPLISHMENTS/PLANNED PROGRAM:</b>				
	FY 2007	FY 2008	FY 2009	
<b>Threat Warning / Self Protection</b>	0.162	0.154	0.296	
RDT&E Articles Quantity	0	0	0	
FY 07-09 Mast Signature Reduction (EO/IR/RCS) Digital EW Jammers Low Probability Intercept, Receiver Improvements				
	FY 2007	FY 2008	FY 2009	
<b>Situational Awareness Enhancements</b>	4.549	4.061	4.073	
RDT&E Articles Quantity	0	0	0	
FY 07-09 Patriot Program and Upgrades Optical Sensor Networks Low Cost Expendable Sensor (LCES) Specific Emitter Identification (SEI) Improvements Advanced Camera Technology (360 Degree Imaging)				
	FY 2007	FY 2008	FY 2009	
<b>Intelligence, Surveillance and Reconnaissance Enhancements</b>	0.045	0.000	0.000	
RDT&E Articles Quantity	0	0	0	
FY 07-09 Alternate CADF Antenna Test Support Passive Surveillance Radar (PSR) Testing Support				
<b>C. OTHER PROGRAM FUNDING SUMMARY:</b>				
Line Item No. & Name (U) Other Program Funding Summary: Not applicable. (U) Related RDT&E: Not applicable.				
<b>D. ACQUISITION STRATEGY:</b>				
This project optimizes technology insertion using a build-test-build approach to support ES and imaging operational needs. Operational needs have been based on the tactical				

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<b>EXHIBIT R-2a, RDT&amp;E PROJECT JUSTIFICATION (CONTINUATION)</b>			DATE February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RD TEN/BA 4</b>	<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>	<b>PROJECT NUMBER AND NAME</b> <b>0770/Adv Sub Supp Equip Prog</b>	
<p>requirements identified in CNO letters, Serial N77/3U629212, dated 04 Sep 03, Serial N77/3U629205, dated 01 Apr 03, and Serial N77/1U651534, dated 30 Oct 01, COMSUBLANT/COMSUBPAC Command Capability Issues (CCIs), Virginia Class SSN Operational Requirements Document objectives, a review, assessment and prioritization of Sensor and Processor efforts and SSN force level projections for SSN688/688I, SSN21, and SSN 774 classes through FY2015. Project efforts develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from DOD Exploratory Development Programs, industry Independent Research and Development, and other sources. Feasibility Demonstration Models (FDMs) will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.</p> <p><b>E. MAJOR PERFORMERS:</b>  NAWC, China Lake, CA  NUWC, Newport, RI  NASA JPL, Pasadena, CA  JHU, Columbia, MD  Applied EM  Navy Research Laboratories (NRL)</p>			

<b>CLASSIFICATION:</b>		<b>UNCLASSIFIED</b>										
<b>EXHIBIT R-3, RDT&amp;E PROJECT COST ANALYSIS</b>									DATE February 2008			
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDTEN/BA 4</b>		<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>					<b>PROJECT NUMBER AND NAME</b> <b>0770/Adv Sub Supp Equip Prog</b>					
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	SS/CPIF	ARETE/AEM/EDO/JHU/JPL/NRL	1.395	1.924	OCT-06	1.541	OCT-07	2.011	OCT-08	TBD	CONT	0.000
Systems Engineering	WR	NUWC Newport, RI	0.679	0.846	OCT-06	1.262	OCT-07	0.532	OCT-08	CONT	CONT	0.000
Systems Engineering	WR/RC	NAWC China Lake	1.550	1.736	OCT-06	1.157	OCT-07	1.565	OCT-08	CONT	CONT	0.000
<b>Subtotal Product Development</b>			<b>3.624</b>	<b>4.506</b>		<b>3.960</b>		<b>4.108</b>		<b>0.000</b>	<b>CONT</b>	<b>0.000</b>
Remarks:												
Engineering Technical Services	CPAF	AT&T GSI, Vienna,VA	0.210	0.220	JAN-07	0.225	NOV-07	0.230	NOV-08	CONT	CONT	0.000
<b>Subtotal Support Costs</b>			<b>0.210</b>	<b>0.220</b>		<b>0.225</b>		<b>0.230</b>		<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
Remarks:												
Travel	WR	Various	0.030	0.030		0.030		0.031			0.121	0.000
<b>Subtotal Management Services</b>			<b>0.030</b>	<b>0.030</b>		<b>0.030</b>		<b>0.031</b>		<b>0.000</b>	<b>0.121</b>	<b>0.000</b>
Remarks:												
<b>Total Cost</b>			<b>3.864</b>	<b>4.756</b>		<b>4.215</b>		<b>4.369</b>		<b>0.000</b>	<b>0.121</b>	<b>0.000</b>

CLASSIFICATION:		UNCLASSIFIED																												
EXHIBIT R-4, SCHEDULE PROFILE			DATE February 2008																											
APPROPRIATION/BUDGET ACTIVITY RD TEN/BA 4	PROGRAM ELEMENT NUMBER AND NAME 0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS				PROJECT NUMBER AND NAME 0770/Adv Sub Supp Equip Prog																									
Fiscal Year	2007				2008				2009				2010				2011				2012				2013					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
<b>ASSEP</b>																														
<b>Threat Warning</b>																														
LPI Receiver Improvements	△	Concept			△	Perf Spec			△	EDM			△	Testing																
RCS/EO/IR Sig Reduction	△	Material Test			△	Coating Sel			△	Coating Test			△	EDM			△	Coating Test							EDM	△				
Digital EW Jammers									△	Concept							△	Performance Spec			△	EDM			Testing	△				
<b>Situational Awareness Enhancements</b>																														
PATRIOT Program				△	Phase B EDM				Testing	△			△	Phase B Impvmnt	Concept		△	Phase B Impvmnt	Bread Board						EDM	△				
Low Cost Exp Sensor (LCES)													△	Fayload Concept	△	Perf Spec	△	EDM			△	Payload Impvmnt								
Optical Sensor Networks									△	Concept							△	Perf Spec			EDM	△								
Specific Emitter ID (SEI)									△	Concept							△	Perf Spec			EDM	△								
Advanced Camera Technology (360 Deg)	△	AEM			△	EDM			Testing	△																				
<b>Intelligence, Surveillance and Reconnaissance (ISR) Enhancements</b>																														
Passive Surveillance Radar (PSR)	△	Testing																			△	PSR Ph 2 Concept			△	EDM			Testing	△
Alternate CADF Antenna Testing Support		Testing	△																											

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EXHIBIT R-4a, SCHEDULE DETAIL						DATE		
						February 2008		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME			
RD TEN/BA 4		0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS			0770/Adv Sub Supp Equip Prog			
Schedule Profile		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Threat Warning/Self Protection								
LPI Receiver Improvements (Concept)		Q1						
LPI Receiver Improvements (Performance Spec)			Q2					
LPI Receiver Improvements (EDM)				Q4				
LPI Receiver Improvements (testing)					Q3			
Signal Reduction (material selection)								
Signal Reduction (material testing)		Q1						
Signal Reduction (Coating Selection)			Q2					
Signal Reduction (Coating testing)				Q3				
Signal Reduction (EDM)					Q4			
Signal Reduction (Coating testing)							Q1	
Signal Reduction (EDM)								Q4
Digital EW Jammers - Concept Studies			Q2					
Digital EW Jammers -Performance Spec						Q2		
Digital EW Jammers - EDM							Q3	
Digital EW Jammers - OT/At-Sea Testing								Q4
Patriot Program (Phase B EDM)		Q4						
Patriot Program (Testing)				Q3				
Patriot Program (Phase B Improvement concept)					Q1			
Patriot Program (Phase B Improvement Bread Board)						Q3		
Patriot Program (Phase B Improvement EDM)								Q4
Low Cost Expendable Sensors (LCES) Payload Concept					Q1			
LCES Performance Spec					Q4	Q1		
LCES EDM						Q4		
LCES Payload improvement							Q4	
Optical Sensors Network (Concept)				Q3				
Optical Sensors Network (Performance spec)						Q2		
Optical Sensors Network (EDM)							Q4	
Specific Emitter ID (SEI) (Concept)				Q3				
Specific Emitter ID (SEI) (Performance spec)						Q2		

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<b>EXHIBIT R-4a, SCHEDULE DETAIL (CONTINUATION)</b>						DATE February 2008		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RD TEN/BA 4</b>		<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>			<b>PROJECT NUMBER AND NAME</b> <b>0770/Adv Sub Supp Equip Prog</b>			
Schedule Profile		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Specific Emitter ID (SEI) (EDM)							Q4	
Advanced Camera Technology (360 degree imaging) AEM		Q1						
Advanced Camera Technology (360 degree imaging) EDM			Q1					
Advanced Camera Technology (360 degree Imaging) DT/OT				Q4				
PSR At-Sea Testing		Q1						
PSR At-Sea Testing (Phase 2) (Concept)						Q3		
PSR At-Sea Testing (Phase 2) (EDM)							Q3	
PSR At-Sea Testing (Phase 2) (Testing)								Q4
Alternate CADF Antenna testing support		Q3						

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<b>EXHIBIT R-2a, RDT&amp;E PROJECT JUSTIFICATION</b>					DATE February 2008		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RD TEN/BA 4</b>		<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>			<b>PROJECT NUMBER AND NAME</b> <b>1739/Submarine Arctic W/F Development</b>		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	5.413	5.504	5.843	5.891	6.025	6.146	6.270
RDT&E Articles Qty	0	0	0	0	0	0	0
<b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> The Submarine Arctic Warfare Development Project responds to the increased threat of Naval activity in the littoral and continuing threat of submarine and surface ship activity in all regions of the world through the development of advanced submarine concepts. It places particular emphasis on submarine operability and mission support in unique environments. Efforts include assessment of combat system effectiveness, weapons testing, use of high frequency sonars in Arctic regions, testing of ice-capable submarine structures, and development of class specific Arctic shallow water operational guidelines. This Project also provides the framework for various R&D programs to conduct test and evaluation in shallow water and Arctic regions.							

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<b>EXHIBIT R-2a, RDT&amp;E PROJECT JUSTIFICATION</b>			<b>DATE</b> February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RD TEN/BA 4</b>	<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>	<b>PROJECT NUMBER AND NAME</b> <b>1739/Submarine Arctic W/F Development</b>	
<b>B. ACCOMPLISHMENTS/PLANNED PROGRAM:</b>			
	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>
<b>Conduct ICEX and Arctic Transit Mission, ICEX Workup and Training, Ice Camp</b>	5.413	5.504	5.843
<b>RDT&amp;E Articles Quantity</b>	0	0	0
<b>FY07-09 Plans:</b> Conduct Ice Exercise (ICEX) mission, Arctic transit mission, ICEX workup, ICEX training, and Ice Camp. Provide planning and logistics, and support Ice Camp Operations and Scientific Ice Expedition (SCICEX) accommodations. Support Arctic deployments, including inter-fleet transfers, as required by the Submarine Force Commanders. Investigate, research, develop and deploy new systems for Arctic submarine support. Support testing and tactical development required to improve submarine Arctic operability and warfighting. Coordinate and provide technical and logistical support for the Ice Camp in the Arctic Ocean in FY07 and FY09.			
<b>C. OTHER PROGRAM FUNDING SUMMARY:</b> Not applicable.			
<b>D. ACQUISITION STRATEGY:</b> Use sole source and competitively awarded contracts through the Fleet Industrial Supply Center (FISC) regional contracting office for equipment and technical services. NAVSEA university omnibus contract will be used for procurement of logistics support for Ice Camps.			
<b>E. MAJOR PERFORMERS:</b> Command Submarine Force US Pacific Fleet (COMSUBPAC) and University of Washington Applied Physics Laboratory (UW/APL). Develop and definitize an Arctic-Deploying Side Scan Sonar replacement plan, which will deliver a significant, improved, and qualitative view of the underside of the Ice Canopy Sighting, and tracking of surfaceable features of current submarines, and the VIRGINIA class submarine.			

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<b>EXHIBIT R-3, RDT&amp;E PROJECT COST ANALYSIS</b>										DATE February 2008		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RDTEN/BA 4</b>		<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>					<b>PROJECT NUMBER AND NAME</b> <b>1739/Submarine Arctic W/F Development</b>					
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
Developmental Test & Evaluation	WR	SUBDEVRON FIVE, HI	2.436	3.990	OCT-06	4.054	DEC-07	4.393	NOV-08	CONT	CONT	0.000
Developmental Test & Evaluation	C/CPFF	APL/University of Washington	0.550	1.300	NOV-06	1.300	JAN-08	1.300	OCT-08	CONT	CONT	0.000
<b>Subtotal Test and Evaluation</b>			<b>2.986</b>	<b>5.290</b>		<b>5.354</b>		<b>5.693</b>		<b>CONT</b>	<b>CONT</b>	<b>0.000</b>
Remarks:												
Program Management Support	C/CPFF	EG&G, VA	0.153	0.000		0.000	FEB-08	0.000	NOV-08	0.000	0.153	0.000
Program Management Support	C/CPFF	BAE SYSTEMS, MD	0.000	0.113	NOV-06	0.140	FEB-08	0.140	NOV-08	CONT	CONT	0.000
Travel	WR	NAVSEA PEO IWS 5, DC	0.010	0.010	NOV-06	0.010	JAN-08	0.010	NOV-08	CONT	CONT	0.000
<b>Subtotal Management Services</b>			<b>0.163</b>	<b>0.123</b>		<b>0.150</b>		<b>0.150</b>		<b>CONT</b>	<b>CONT</b>	<b>0.000</b>
Remarks:												
<b>Total Cost</b>			<b>3.149</b>	<b>5.413</b>		<b>5.504</b>		<b>5.843</b>		<b>CONT</b>	<b>CONT</b>	<b>0.000</b>

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EXHIBIT R-4, SCHEDULE PROFILE												DATE																					
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APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME																											
RD TEN/BA 4		0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS				1739/Submarine Arctic W/F Development																											
Fiscal Year		2007				2008				2009				2010				2011				2012				2013							
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Arctic Ice Exercise</b>																																	
<b>ICEX Mission (at Sea)</b>																																	
A Submarine arctic operation is to improve the Navy's understanding of the Arctic.																																	
<b>Arctic Transit Mission (at Sea)</b>																																	
An operation in support of the Navy's need to "surge" a submarine from the Atlantic to the Pacific (or vice versa) via the Arctic.																																	
<b>ICEX Workup (at Sea)</b>																																	
A short underway period conducted in the submarine's local operating areas prior to embarking on an Arctic mission.																																	
<b>B. PROGRAM CHANGE SUMMARY:</b>																																	
<b>ICEX Training</b>																																	
Provides classroom training to the ship's watchstanders by the Ice pilot(s) to practice under-ice shiphandling.																																	
<b>ICE Camp (Arctic Ocean)</b>																																	
A remote field station set up in the Arctic to conduct scientific and tactical testing.																																	
<b>SCICEX Accommodation</b>																																	
Support scientific understanding of the Arctic Ocean.																																	

R-1 Line Item No: 45

\* Not required for Budget Activities 1, 2, 3, and 6

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<b>EXHIBIT R-4a, SCHEDULE DETAIL</b>						DATE February 2008		
<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RD TEN/BA 4</b>		<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>			<b>PROJECT NUMBER AND NAME</b> <b>1739/Submarine Arctic W/F Development</b>			
Schedule Profile		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
ICEX Mission (at Sea)		1Q-4Q		1Q-4Q		1Q-4Q		1Q-4Q
Arctic Transit Mission (at Sea)		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
ICEX Workup (at Sea)		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
ICEX Training		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
ICE Camp (Arctic Ocean)		1Q-4Q		1Q-4Q		1Q-4Q		1Q-4Q
SCICEX Accommodation		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

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<b>APPROPRIATION/BUDGET ACTIVITY</b> <b>RD TEN/BA 4</b>	<b>PROGRAM ELEMENT NUMBER AND NAME</b> <b>0603562N/SUBMARINE TACTICAL WARFARE SYSTEMS</b>	<b>PROJECT NUMBER AND NAME</b> <b>9999/CONGRESSIONAL ADDS</b>	
<b>B. ACCOMPLISHMENTS/PLANNED PROGRAM:</b>			
	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>
<b>Organic Submarine Airborne ISRT Stealthy Affordable Capsule System (SACS)</b>	0.000	2.782	0.000
RDT&E Articles Quantity	0	0	0
Organic Submarine Airborne ISRT Demo.			
	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>
<b>High Awareness Littoral Observing (HALO) Sensor-360 Degree Imaging System</b>	0.000	0.994	0.000
RDT&E Articles Quantity	0	0	0
High Awareness Littoral Observing Halo.			
	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>
<b>Submarine Targeting Agile Array with Rapid Zooming</b>	0.000	1.311	0.000
RDT&E Articles Quantity	0	0	0
Submarine Targeting Agile Array with Rapid Zooming.			