BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0766 IUSS Detect/ Classif System	23,995	20,056	20,405	22,797	25,506	27,590	27,502	CONT.	CONT.
X0758 SURTASS	11,843	8,530						CONT.	CONT.
X9102 IUSS Mission Planning		6,740							
X9103 FDS		2,973							
TOTAL	35,838	38,299	20,405	22,797	25,506	27,590	27,502	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (P.E.) comprises four projects - X0766, X0758, X9102 and X9103. Project X0766 provides for Integrated Undersea Surveillance Systems (IUSS) Research and Development Projects. Project X0758 is for the Surveillance Towed Array Sensor (SURTASS) development efforts. IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. The program has undergone a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of submarines to a much smaller force that is effective against modern diesel and nuclear submarines in regional/littoral or broad ocean areas of interest. This transition preserves the ability to continue open ocean surveillance. Beginning in FY03, Project X0758 budget is being moved to Project X0766 line. Projects X9102 and X9103 are Congressional Plus Ups that support development efforts for IUSS.

(U) The IUSS Research and Development project (X0766) funds Fixed Surveillance Systems (FSS), which encompasses the Sound Surveillance System (SOSUS), the Surveillance Direction System (SDS), and the Fixed Distributed System (FDS), as well as SURTASS Low Frequency Active (LFA) developments. SOSUS processing sites have been converted to SDS/SSIPS (Shore Signal and Information Processing Segment) to significantly lower life cycle costs and enable system-wide consolidation. SURTASS LFA will provide an active adjunct capability for IUSS passive and tactical sensors to assist in countering the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters.

BUDGET ACTIVITY: 7

PROGRAM ELEMENT: 0204311N
PROGRAM ELEMENT TITLE: Integrated Surveillance System

(U) In order to continue with reductions in life cycle costs and continue with system-wide consolidation, a long-term goal is to develop a single IUSS processor based on NAVSEA's Acoustic Rapid COTS Insertion (ARCI) program. The IUSS Common processor will have the capability to process and display data from future underwater systems (such as the Advanced Deployable System (ADS) and FDS-C). The IUSS Common processor will also have the capability to replace the legacy systems (SSIPS, SDS, and SURTASS) as they reach end of life and require upgrading.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: Budget Activity 7: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACUTALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0766 IUSS Detect/Classif System									
TOTAL	23,995	20,056	20,405	22,797	25,506	27,590	27,502	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS also provides the undersea surveillance necessary to support regional conflicts and sea-lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is greatly reducing costs by consolidating logistics support, using Non-Developmental Items and commercial hardware, and increasing operator efficiency through computer aided detection and classification processing. SURTASS development efforts include: twin-line array processing, improved detection and classification/passive automation to counter quieter threats; additional signal processing and bi-static active capability; integrated active and passive operations; improved Battle Group support; and improved information processing. Functional improvements are delivered to the Fleet in software "Builds". Future builds will be based upon the Advanced Processor Build (APB) process begun by the NAVSEA Submarine USW program. APB-99 will be used to support an ARCI(I) Engineering Development Model (EDM) demonstration system, providing A-180R long-line processing only. APB-01 was used for the production ARCI(I) systems for all long-line arrays. APB-02 will provide Twin-line processing capabilities, and APB-03 will provide active processing capabilities. Additionally, each APB will introduce new capabilities into SURTASS systems including improved automation, normalizer techniques, adaptive beamforming, and display enhancements. SURTASS participates in the process by contributing algorithms for consideration, supplying peer group members for review of candidate algorithms, participating in test evolutions, and incorporating improved algorithms into operational systems. LFA will provide an active adjunct capability for IUSS passive and tactical sensors to counter the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters. Improvements include Twin-Line/LFA integration enhancements; advanced waveforms for littoral/shallow water operations including doppler sensitive waveforms; and processing algorithms to reduce clutter and reverberation false alarms in shallow water. Also includes Adaptive Beamforming; Integration of tactical decision aids for LFA monostatic and bistatic operation; integration of SURTASS active and passive information processing systems to provide contact association and geographic tracking; and common antisubmarine warfare (ASW) OMI and environmental processing. The LFA task includes development and testing of a compact LFA transmit source array for SWATH-P ships.

B. (U) PD18 is involved with the development and maintenance of various IUSS systems. These systems include FDS, FDS-C, SDS, SURTASS, and ADS. The near term objective is to obtain a common Operator Machine Interface (OMI) among currently fielded systems. The long-term goal is to develop a single IUSS processor baseline, with minor maintenance efforts continuing on fielded systems. The existing system architecture, signal processing, contract management, and reporting requirements will be evaluated as well as the requirements for future systems. The development of the IUSS processor will take advantage of automation advancement, array technology improvements, and IUSS, submarine, and surface USW system commonality.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments:

- (9,364) Developed fiber optic sensor technology for a long life all optical underwater surveillance system.
- (4,833) Developed/expanded the collaborative planning functionality of WeCAN to include other multi-mission warfare areas.
- (3,138) Continued design and development of software to transition IUSS to a common processing architecture(ARCI). Verify design and functionality via in lab demonstration testing and sea tests.
- (3,260) Continued LFA development for T-AGOS 23 and to improve performance in shallow water/littoral regions to support ARG operations. Planned LFA Cory shakedown tests to verify system operability and operator training.
- (1,200) Continued scientific research program to support operational deployment of LFA.
- (500) Continued integration of IUSS into the Fleet C4ISR architecture.
- (1,000) Conducted trade-off analysis for LLFA array, processing, array handling and ship modification.
- (700) Conducted trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

2. (U) FY 2002 PLANS

- (1,887) FSS – Continue design and development of software and perform hardware evaluations to transition IUSS to a common processing architecture. Verify design and functionality via in lab demonstration testing.

- (1,866) LFA MSIII – Conduct T-23 development testing/Operational Testing (DT/OT) certification testing. Correct software issues uncovered during testing.

- (3,099) Common Acoustic Processor – Complete development of SURTASS ARCI(I) capability for all single line array types. Develop software for Twin-Line processing in the ARCI(I) architecture.

- (1,828) Surveillance System Integration – Continue integration of SURTASS ARCI(I) capability with IUSS legacy systems. Integrate future ARCI(I), Comms, and TDA improvements.

- (2,679) Active Acoustics – Continue implementation of a multi-year sea test program focused on CONOPS and the physics of shallow water. Develop improvements for LFA operations in shallow water, conduct analysis, simulations, and trade-off studies to define the optimum configuration of shallow water sources, including frequency diversity and power levels, source technology, array handling configurations/platforms. Continue sea test program to support system improvements and demonstrate/validate operational concepts.

- (1,200) LFA Environmentals – Continue environmental research on the effect of low frequency active sonar on marine mammals.

- (1,100) N74 ASW Study – Continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

- (200) ASWC4I – Continue performing engineering, analysis and trade-offs; conduct proof of concept testing to support IUSS integration into the Navy’s C4I architecture, including IT-21 implementation. Continue supporting IUSS C4I IPT. Coordinate the development of GCCS-M ASW Tactical Decision Aids (TDAs). Define ASWC4I system concepts, system interfaces and architecture.

- (250) System Engineering – Provide system level engineering across IUSS programs. Translate Fleet requests into system level design solutions.

- (5,947) WECAN – Expand capability of WECAN collaborative planning functionality to include other multi-mission warfare areas. Provide WECAN functionality to new ASW platforms.

3. (U) FY 2003 PLANS

- (2,944) FSS – Continue design and development of software and perform hardware evaluations to transition IUSS to a common processing architecture. Verify design and functionality via in lab demonstration testing. Efforts are site-specific development/integration to accommodate the new hardware.

- (1,825) LFA MSIII – Continue T-23 development testing/Operational Testing (DT/OT) certification testing. Correct software issues uncovered during testing.

- (3,066) Common Acoustic Processor – Continue software development for Twin-Line processing in the ARCI(I) architecture. Add APB improvements to single line ARCI(I) capability.

- (1,300) Surveillance System Integration – Continue integration of SURTASS ARCI(I) capability with IUSS legacy systems. Continue integration of future ARCI(I), Comms, and TDA improvements.

- (2,531) Active Acoustics – Continue implementation of a multi-year sea test program focused on CONOPS and the physics of shallow water. Continue development of improvements for LFA operations in shallow water, conduct analysis, simulations, and trade-off studies to define the optimum configuration of shallow water sources, including frequency diversity and power levels, source technology, array handling configurations/platforms. Continue sea test program to support system improvements and demonstrate/validate operational concepts.

- (600) LFA Environmentals – Continue environmental research on the effect of low frequency active sonar on marine mammals.

- (1,074) N74 ASW Study – Continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.

- (200) ASWC4I – Continue performing engineering, analysis and trade-offs; conduct proof of concept testing to support IUSS integration into the Navy's C4I architecture, including IT-21 implementation. Continue supporting IUSS C4I IPT. Continue to coordinate the development of GCCS-M ASW Tactical Decision Aids (TDAs). Continue to define ASWC4I system concepts, system interfaces and architecture.

- (255) System Engineering – Continue to provide system level engineering across IUSS programs. Translate Fleet requests into system level design solutions.

- (1,500) Passive Processing – Develop algorithms and software for signal processing algorithms associated with unique SURTASS requirements and environments, in conjuction with the SPWG. Optimize processing and displays for specific threat missions to improve operator recognition. Participation in SDWG and related working groups (SPWG, COSG, DFWG, TEASG, etc.). Identification of open and closed IUSS data sets for conduct of APB Step 2 and Step 3 evaluations.

- (1,250) Sonar Automation – Develop automated tools to reduce operator workload caused by increased beam count and high clutter in shallow water. Develop algorithms and software for alerting operators to threat signals, monitoring of low priority beams and frequency space to support link management concepts, acoustic signature formation tuned to SURTASS environments and arrays, target passive ranging, auto tracking and reporting, and surface ship identification for decluttering, in conjunction with the AWG. Participation in the AWG and related APB efforts. Identification of open and closed IUSS data sets for conduct of APB Step 2 and Step 3 evaluations.

- (2,620) TB-29A/Twin-Line – Continue processing improvements to support TB-29A operations and expand array interoperability. Develop across platform telemetry architecture. Continue work to implement twin-line to long-line conversion capabilities, including processing and hardware changes.

- (1,240) Shore Processing – Continue incorporation of OMI Commonality Working group guidance. Continue development of Link Management functionality. Develop shore processing capability for TB-29A array and off-board sensors.

B. (U) PROGRAM CHANGE SUMMARY:

FY 2001: Section 8086 .7% Pro-Rata Reduction (-$176K), Congressional Plus-Up WECAN Tech to Other Warfare Areas and Domain (+$5,000K), Congressional Plus-Up Advanced Deployable System (+$9,500K), Government-Wide Rescission Issue 63334 (-$55K), Miscellaneous Navy Adjustments (-$148K), SBIR Assessment (-$522K), BTR CTO Synthetic Aperture Sonar (-$207K).

FY 2002: Congressional Plus-Up WECAN WEB CENTRIC ASW NET (+$6,000K), Section 8123 Management Reform Initiative (-$179K).

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OPN# 2225	0	0	2,000	7,000	7,000	0	0	CONT.	CONT.
OMN 1C3C	26,361	28,916	30,674	32,753	38,863	39,793	40,853	CONT.	CONT.
OPN# 2237	5,457	17,494	20,639	20,670	29,160	25,760	18,000	CONT.	CONT.

(U) RELATED RDT&E:
(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)
(U) PE 0603747N(Undersea Warfare Advanced Technology)

D. (U) ACQUISITION STRATEGY:

	FY2001	FY2002	FY2003
Program Milestones			
Engineering Milestones	ARCI A-180R VARIANT 7/01	ARCI PBA/RDA VARIANT 7/02	ARCI TB29/TL ARCI TL VARIANT 7/03
T&E Milestone	SEA TEST ARCI A180R VARIANT 9/01		T-23 SEA TESTS DT-5/03 SEA TEST
Contract Milestones	T-AGOS 23 DLVRY 3/01	ARCI (I) PROCUREMENT	ARCI TB29/TL VARIANT 9/03

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 1)												
RDT&E/Budget Activity 7			PROGRAM ELEMENT: 0204311N							SURTASS x0766		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value Of Contract
WeCAN	CPFF/ WX	ORINCON/Var	0	4,833	Apr-01	5,947	Apr-02			0	10,780	
FDS/AODS	CPFF/ WX	TBD	0	8,000	Sep-01	0				0	8,000	
IUSS Common Architecture/Surveillance System Integration/ System Eng.	CPFF	DSR/LM/ARL/Var	24,148	4,181	Nov-00	6,611	Oct-01	6,905	Nov-02	Cont.	Cont.	
Environmental Research	WR	ONR/Various	5,500	1,200	Nov-00	1,200	Nov-01	600	Nov-02	Cont.	Cont.	
LFA Improvements/LFA MS III/Active Acoustics	CPFF/ WX	RSC/LS/DSR/Var	80,555	1,515	Nov-00	2,432	Nov-01	2,206	Nov-02	Cont.	Cont.	
C4I Integration	CPFF/WX	Various	31,278	115	Nov-00	150	Nov-01	150	Nov-02	Cont.	Cont.	
N74 ASW Study	WX/PD	NUWC/APL	0	700	Nov-00	1,100	Nov-01	1,074	Nov-02	Cont.	Cont.	
Various	WX	Various	28,457	0		0					28,457	
Subtotal Product Development			169,938	20,544		17,440		10,935		Cont.	Cont.	

Remarks:
ORINCON= San Diego, CA
Litton= Woodland Hills, CA
RSC= Raytheon Systems Co. Portsmouth, RI
LM= Lockheed Martin, Manassas, VA
TRW=TRW Systems Div., San Diego, CA
L/S= Lockheed Sanders, Nashua, NH
DSR = Digital System Resources, Fairfax, VA

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 2)												
RDT&E/Budget Activity 7			PROGRAM ELEMENT: 0204311N						SURTASS x0766			
Cost Categories	Con-tract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
IUSS Common Arch. /Surveillance System Int.	WX	Various	990	0	N/A	0	N/A	160	Nov-02	Cont.	Cont.	
LFA Improvements/ LFA MSIII Active Acoustics	CPFF	TRW/Various	2,930	625	Nov-00	450	Nov-01	500	Nov-02	Cont.	Cont.	
C4ISR Integration	CPFF	TRW/Various	1,534	135	Nov-00	50	Nov-01	50	Nov-02	Cont.	Cont.	
FDS/AODS	WX	Various	0	1,216	May-01	0	N/A	0	N/A	0	1,216	
Subtotal Support			5,454	1,976		500		710		Cont.	Cont.	
Remarks												
IUSS Common Arch./ Surveillance System Integration	Var/WX	Various	651	0	N/A	400	Nov-01	500	Nov-02	Cont.	Cont.	
LFA Improvements/ LFA MSIII Active Acoustics	Var/WX	Various	2,975	1,325	Var.	1,566	Var.	1,500	Nov-02	Cont.	Cont.	
Subtotal T&E			3,626	1,325		1,966		2,000		Cont.	Cont.	
Remarks												
LFA Improvements/ C4ISR	Var/Wx	Various	1,437	150	Var.	150	Var.	150	Nov-02	Cont.	Cont.	
Subtotal Management			1,437	150		150		150		Cont.	Cont.	
Remarks												

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Exhibit R-3 Cost Analysis (page 3)												
RDT&E/Budget Activity 7		PROGRAM ELEMENT: 0204311N								SURTASS x0766		
Cost Categories	Con-tract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Passive Signal Processing/Sonar Automation	CPFF	APL/DSR						2,200	Nov-02	Cont.	Cont.	
Array Improvements	CPFF/WR	APL/SSC/ Var						1,950	Nov-02	Cont.	Cont.	
Processing Improvements/ Shore Processing	CPFF	ARL/DSR/ Var						809	Nov-02	Cont.	Cont.	
Subtotal Product Development								4,959		Cont	Cont	
Remarks: APL = APL/JHU DSR = Digital Systems Resources SSC = SPAWAR Systems Center ARL = ARL/UT												
Passive/Array Improvements	Var/Wx	Various						500	Nov-02	Cont.	Cont.	
Subtotal Support								500		Cont.	Cont.	
Remarks												
Passive/Array improvements	Var/WX	MISC.						1,050	Nov-02	Cont.	Cont.	
Subtotal T&E								1,050		Cont.	Cont.	
Remarks												
Passive/Array improvements	Var/WX	MISC.						101	Nov-02	Cont.	Cont	
Subtotal Mgmt								101		Cont	Cont	

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0766
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

Remarks												
Total Cost			180,455	23,995		20,056		20,405		Cont	Cont	

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

(U) COST:(Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0758 SURTASS									
TOTAL	11,843	8,530							

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS also provides the undersea surveillance necessary to support regional conflicts and sea-lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is greatly reducing costs by consolidating logistics support, using Non-Developmental Items and commercial hardware, and increasing operator efficiency through computer aided detection and classification processing. SURTASS development efforts include: twin-line array processing, improved detection and classification/passive automation to counter quieter threats; additional signal processing and bi-static active capability; integrated active and passive operations; improved Battle Group support; and improved information processing. Functional improvements are delivered to the Fleet in software "Builds". Future builds will be based upon the Advanced Processor Build (APB) process begun by the NAVSEA Submarine USW program. APB-99 was used to support an ARCI(I) Engineering Development Model (EDM) demonstration system, providing A-180R long-line processing only. APB-01 will be used for the production ARCI(I) systems for all long-line arrays. APB-02 will provide Twin-line processing capabilities, and APB-03 will provide active processing capabilities. Additionally, each APB will introduce new capabilities into SURTASS systems including improved automation, normalizer techniques, adaptive beamforming, and display enhancements. SURTASS participates in the process by contributing algorithms for consideration, supplying peer group members for review of candidate algorithms, participating in test evolutions, and incorporating improved algorithms into operational systems. Project X0758 budget is being moved to Project X0766 beginning in FY03.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

- (2,000) TB-29A/Twin-Line – Continued hardware and software development and processing improvements to support TB-29A operations and expand array interoperability.

- (2,000) Passive Processing & Automation – Continued Computer Aided Detection, Classification, and Tracking improvements, and development of automated tools to improve passive performance to support tactical operations and reduce operator workload in high clutter environments.

- (1,843) Bi-Static and Shore Processing – Continued software development to improve Bi-Static Processing in littoral/shallow water regions. Develop Link Management strategies for providing Bi-Static data to shore to reduce requirements for deploying Military Detachments (MILDETS).

- (6,000) Onboard Signal Processor – Began integration of SURTASS shipboard processing (ARCI) into a network-Centric architecture to extend SURTASS capabilities to other tactical platforms.

- (U) FY 2002 PLANS:

- (1,923) Passive Processing & Automation – Develop capability for monitoring low priority beams, improved acoustic signature formation, and target passive ranging. Continue development of software for processing off-board (autonomous) sensor data.

- (3,000) TB-29A/Twin-Line – Continue processing improvements to support TB-29A operations and expand array interoperability. Develop across platform telemetry architecture. Investigate concepts for conversion of TB-29A Twin-line capability into a Long-line capability.

- (1,807) Shore Processing – Continue incorporation of OMI Commonality Working group guidance. Continue development of Link Management functionality. Develop shore-processing capability for TB-29A array and off-board sensors.

- (1,800) SURTASS/LFA – Continue software development to improve processing in littoral/shallow water regions.

B. (U) PROGRAM CHANGE SUMMARY

FY 2001: Section 8086 .7% Pro-Rata Reduction (-$86K), Congressional Plus-Up ASW Combat Sys Int - Onboard Signal Processor (+$6,000K), Government-Wide Rescission Issue 68869 (-$27K), Miscellaneous Navy Adjustment (0), SBIR Assessment (-$155K), BTR CTO Synthetic Aperture Sonar (-$123K), Miscellaneous Navy Adjustments (-$252K).

FY 2002: Congressional Plus-Up SURTASS/LFA (+$2,800K), Section 8123 Management Reform Initiative (-$76K).

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

	FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
OMN 1C3C	26,361	28,916							
OPN 2237	5,457	17,494							

(U) RELATED RDT&E:

(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0603785N(Combat Systems Oceanographic Performance Assessment)
(U) PE 0603747N(Undersea Warfare Advanced Technology)

D. (U) ACQUISITION STRATEGY:

	FY2001	FY2002
Program Milestones		
Engineering Milestones	ARCI A-180R VARIANT 7/01	ARCI PBA/RDA VARIANT 7/02
T&E Milestones	SEA TEST ARCI A180R VARIANT 9/01	SEA TEST ARCI PBA/RDA VARIANT 9/02
Contract Milestones		TB-29A/TL Procurement

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

Exhibit R-3 Cost Analysis (page 1)												
RDT&E/Budget Activity 7		PROGRAM ELEMENT: 0204311N						SURTASS x0758				
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Passive Signal Processing/Sonar Automation	CPFF	APL/DSR	22,952	2,000	Nov-00	1,900	Nov-01				26,852	
Array Improvements	CPFF/WR	APL/SSC/Var	16,451	1,075	Nov-00	2,075	Nov-01				19,601	
Processing Improvements/Shore Processing	CPFF	ARL/DSR/Var	24,588	1,433	Nov-00	1,374	Nov-01				27,395	
Various	Var/WX	Various	15,103	0	Nov-00	0	N/A				15,103	
Common Processor	WX	DSR	1,200	0	N/A	0	N/A				1,200	
Onboard Signal Processing	Var/WX	Various	0	5,675	May-01						5,675	
SURTASS/LFA	Var/WX	Various	0	0	N/A	1,700	May-02				1,700	
Subtotal Product Development			80,294	10,183		7,049					97,526	

Remarks:
APL = APL/JHU
RSC = Raytheon Systems Co.
SSC = SPAWAR Systems Center.
ARL = ARL/UT

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

Exhibit R-3 Cost Analysis (page 2)												
RDT&E/Budget Activity 7			PROGRAM ELEMENT: 0204311N							SURTASS x0758		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY01 Cost	FY01 Award Date	FY02 Cost	FY02 Award Date	FY 03 Cost	FY03 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Passive/Array Improvements	Var/Wx	Various	1,838	375	Nov-00	375	Nov-01				2,588	
Onboard Signal Processing	Var/Wx	Various	0	125	May-01						125	
SURTASS/LFA Processing	Var/WX	Various	0	0	N/A	100	May-02				100	
Subtotal Support			1,838	500		475					2,813	
Remarks												
Passive/Array improvements	Var/WX	MISC.	3,313	945	Nov-00	945	Nov-01				5,203	
Onboard Signal Processing	Var/WX	Various	0	100	May-01						100	
Subtotal T&E			3,313	1,045		945					5,303	
Remarks												
Passive/Array improvements	Var/WX	MISC.	522	15	Nov-00	61	Nov-01				598	
Onboard Signal Processing	Var/WX	Various	0	100	May-01						100	
Subtotal Management			522	115		61					698	
Remarks												
Total Cost			85,967	11,843		8,530					106,340	

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X0758
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: SURTASS

Remarks
Beginning in FY03, Project X0758 budget is being moved to Project X0766 line.

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X9102
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACUTALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X9102 IUSS									
TOTAL		6,740							6,740

A. (U) IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. The program has undergone a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of submarines to a much smaller force that is effective against modern diesel and nuclear submarines in regional/littoral or broad ocean areas of interest. This transition preserves the ability to continue open ocean surveillance. PD18 is involved with the development and upgrade of various IUSS systems. These systems include FDS, FDS-C, SDS, SURTASS, and ADS.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments: N/A

2. (U) FY 2002 PLANS: (6,740) Funds first phase of the Automated IUSS Mission Planning System. This effort builds on the work begun in the ADS program (PE 0604784N) to automate array laydown and cable routing plans and allows the mission planner the capability to rapidly update the plan. Functional requirements for FSS, ADS and SURTASS will be combined and prioritized with fleet input. Software will be developed as GCCS-M segments that are at least level 6 DII-COE compliant. Included is approximately 800K to collect environmental and physical data for an area of high fleet tactical interest for mission planner demonstration.

3. (U) FY 2003 PLANS: N/A

B. (U) PROGRAM CHANGE SUMMARY:

FY 2002: Congressional Plus-Up FDS (+$6,800), Section 8123: Management Reform Initiative (-60K)

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X9102
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: IUSS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM

(U) RELATED RDT&E:
(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0604784N(Advanced Deployable System)

D. (U) ACQUISITION STRATEGY:

	FY2001	FY2002	FY2003
Program Milestones			
Engineering Milestones		PDR 6/02 DDR 9/02	
T&E Milestone			
Contract Milestones			

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X9103
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: FDS

(U) COST (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACUTALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X9103 FDS									
TOTAL	2,973								2,973

A. (U) IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. The program has undergone a major transition from emphasis on maintaining a large dispersed surveillance force keyed to detection and tracking of submarines to a much smaller force that is effective against modern diesel and nuclear submarines in regional/littoral or broad ocean areas of interest. This transition preserves the ability to continue open ocean surveillance. PD18 is involved with the development and upgrade of various IUSS systems. These systems include FDS, FDS-C, SDS, SURTASS, and ADS.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments: N/A
2. (U) FY 2002 PLANS:

   (2,973) Develop FSS system improvements to optimize performance. Development efforts include calibrated data collection, increased frequency capability and the impact on signal processing and array designs and increased bandwidth for signal processing. Continue development of an All-Optical underwater surveillance system.

B. (U) PROGRAM CHANGE SUMMARY:

FY 2002: Congressional Plus-Up FDS (+$3,000K), Section 8123: Management Reform Initiative (-27K)

BUDGET ACTIVITY: 7 PROGRAM ELEMENT: 0204311N PROJECT NUMBER: X9103
PROGRAM ELEMENT TITLE: Integrated Surveillance System PROJECT TITLE: FDS

C. (U) OTHER PROGRAM FUNDING SUMMARY: (Dollars in thousands)

FY 2001 ACTUALS	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM

(U) RELATED RDT&E:
(U) PE 0204311N(Integrated Surveillance System)
(U) PE 0604784N(Advanced Deployable System)

D. (U) ACQUISITION STRATEGY:

	FY2001	FY2002	FY2003
Program Milestones			
Engineering Milestones			
T&E Milestone			
Contract Milestones			