Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603721N *I Environmental Protection*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	475.716	28.150	21.647	24.457	-	24.457	24.448	24.775	25.239	25.730	Continuing	Continuing
0401: *Shipboard Waste Mgmt*	365.307	9.315	10.051	11.615	-	11.615	11.631	11.853	12.074	12.301	Continuing	Continuing
0817: *Environmental Sustainability Development (NESDI)*	68.891	5.359	5.197	6.010	-	6.010	5.986	5.959	6.077	6.199	Continuing	Continuing
2549: *Environmental Restoration*	0.000	7.550	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.550
9204: *Marine Mammal Research*	41.518	5.926	6.399	6.832	-	6.832	6.831	6.963	7.088	7.230	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program develops and evaluates processes, hardware, systems, operational procedures, scientific methods, and environmental studies that will allow the Navy to operate in U.S., foreign, and international waters, air, space, and land areas while complying with environmental laws, regulations, Executive Orders, policies and international agreements.

Many environmental laws, regulations, and policies impose restrictions on Navy training and testing, vessels, aircraft, and facilities that interfere with operations and/or increase the cost of operations. The Navy must be able to conduct its national security mission in compliance with applicable environmental requirements in the U.S. and abroad without compromising performance, safety, or health, while simultaneously minimizing the cost of compliance. The projects for this Program Element (PE) support the Navy's compliance with the (a) Clean Water Act; (b) Act to Prevent Pollution from Ships; (c) International Convention for the Prevention of Pollution from Ships; (d) DoD Manual 4715.06, "Regulations on Vessels Owned or Operated by the Department of Defense," Vol 1-4; (e) Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990; (f) National Invasive Species Act of 1996; (g) Ballast Water Management for Control of Nonindigenous Species in Waters of the United States; (h) Clean Air Act; (i) Federal Insecticide, Fungicide, and Rodenticide Act; (j) Marine Mammal Protection Act; (k) Endangered Species Act; (l) Comprehensive Environmental Response, Compensation, and Liability Act; and (m) Resource Conservation and Recovery Act. References (a) through (m) establish Level I environmental protection requirements. Project 0401, Shipboard Waste Management, supports efforts that enable Navy ships and submarines to comply with laws, regulations, and policies in six major areas: (1) Technical Authority, (2) Liquid Wastes, (3) Hazardous Material Control and Management, (4) Ballast Water Management, (5) Solid Waste Management, and (6) Copper-Free and Low Copper Antifouling.

The Marine Mammal Research (MMR) program is responsible for applied research and works to address the Navy's key research needs and transition the results and technologies for use within the Navy's at-sea environmental compliance and permitting processes in compliance with the Marine Mammal Protection Act and the Endangered Species Act, with the goals of improving marine species impact analysis (including marine mammal take estimates), mitigation measures and monitoring capabilities. Key points of the MMR mission are: (1) Improve the best available science regarding the potential impacts to marine species from Navy activities, (2) Expand the technology and methods available to the U.S. Navy marine species monitoring program (3) Preserve core Navy readiness capabilities. This funding allows the Navy to avoid or reduce the chances of costly litigation for non-compliance.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy					Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603721N *I Environmental Protection*		
B. Program Change Summary ($ in Millions)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	20.677	21.647	22.770	-	22.770
Current President's Budget	28.150	21.647	24.457	-	24.457
Total Adjustments	7.473	0.000	1.687	-	1.687
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.550	0.000			
• SBIR/STTR Transfer	-0.077	0.000			
• Program Adjustments	0.000	0.000	1.249	-	1.249
• Rate/Misc Adjustments	0.000	0.000	0.438	-	0.438

Change Summary Explanation

FY 2024 increase of ($2.810) million is due to program adjustments for Shipboard Waste Management, Environmental Sustainability Development, and Marine Mammal Research.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 0401 / *Shipboard Waste Mgmt*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0401: *Shipboard Waste Mgmt*	365.307	9.315	10.051	11.615	-	11.615	11.631	11.853	12.074	12.301	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Navy ships and submarines must routinely operate in U.S., international, and foreign waters, and visit numerous U.S. and foreign ports. No body of water is without environmental restrictions that impact the movements and operations of Navy vessels. Environmental requirements tend to be most restrictive in port and in coastal waters, where the Navy's increasing littoral presence places ships and submarines in discharge-restricted waters for longer periods of time. Growing international cooperation in addressing global environmental concerns is resulting in expanding areas of ocean considered environmentally susceptible, where special prohibitions on ship discharges and operations are imposed. Navy vessels must comply with applicable environmental legal requirements while maintaining continued access to all waters for operations, exercises, training, and port access. The large crews and limited on-board space of Navy ships and submarines severely constrain their ability to hold wastes for return to port for shore side disposal.

Many environmental laws, regulations, and policies impose restrictions on Navy training and testing, vessels, aircraft, and facilities that interfere with operations and/or increase the cost of operations. The Navy must be able to conduct its national security mission in compliance with applicable environmental requirements in the U.S. and abroad without compromising performance, safety, or health, while simultaneously minimizing the cost of compliance. The projects for this Program Element (PE) support the Navy's compliance with the (a) Clean Water Act; (b) Act to Prevent Pollution from Ships; (c) International Convention for the Prevention of Pollution from Ships; (d) DoD Manual 4715.06, "Regulations on Vessels Owned or Operated by the Department of Defense," Vol 1-4; (e) Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990; (f) National Invasive Species Act of 1996; (g) Ballast Water Management for Control of Nonindigenous Species in Waters of the United States; (h) Clean Air Act; (i) Federal Insecticide, Fungicide, and Rodenticide Act; (j) Marine Mammal Protection Act; (k) Endangered Species Act; (l) Comprehensive Environmental Response, Compensation, and Liability Act; and (m) Resource Conservation and Recovery Act. References (a) through (m) establish Level I environmental protection requirements. Project 0401, Shipboard Waste Management, supports efforts that enable Navy ships and submarines to comply with laws, regulations, and policies in six major areas: (1) Technical Authority, (2) Liquid Wastes, (3) Hazardous Material Control and Management, (4) Ballast Water Management, (5) Solid Waste Management, and (6) Copper-Free and Low Copper Antifouling.

The Afloat Environmental Quality Program supports the designated Technical Warrant Holders for Environmental Systems & Materials Engineering, with responsibility and accountability for ensuring that ships and submarines are designed and upgraded, and can be operated, in compliance with existing and anticipated environmental requirements while minimizing total ownership cost and manning. This responsibility encompasses legacy platforms and new vessel designs, as well as Fleet operations exercises, and training.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Technical Authority	1.555	1.584	1.584	0.000	1.584
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Funding in support of Technical Authority (TA) is utilized to develop waste stream design criteria and guidance. This includes system/technology selection, processing capacity, interfaces, shipboard integration, test and qualification protocols, processes and practices, performance specifications, and development of ship requirement packages for various waste streams. ***FY 2023 Plans:*** - Continue to update the Ship Oil Spill Database, analyze oil spill root causes and identify policy/training/ hardware deficiencies to reduce oil discharges/violations. - Draft USS San Antonio Class (LPD-17 Class) ship specific guidance on oil spill prevention and response to reduce ship oil spill discharge violations. - Continue evaluation of most promising commercial hull cleaning technologies to determine future system feasibility to meet Uniform National Discharge Standards (UNDS) requirements. - Continue to work with Fleet, acquisition programs, and technical authorities to review and provide comments on issues, risks, and opportunities so as minimize the cost and risk to the Navy. - Continue meetings with the North Atlantic Treaty Organization (NATO) and foreign Navy data exchange partners to leverage lessons learned on afloat environmental compliance. - Continue development of environmental equipment/system requirements documentation, design criteria/ guidance, standards, and certification protocols based on evolving regulations and policy. - Continue to perform annual assessments of emergent air and water emission processes and technologies to enable effective compliance at minimal life cycle cost and risk to operations. ***FY 2024 Base Plans:*** - Continue to update the Ship Oil Spill Database, analyze oil spill root causes and identify policy/training/ hardware deficiencies to reduce oil discharges/violations. - Publish LPD-17 Class ship specific guidance on oil spill prevention and response to reduce ship oil spill discharge violations. - Continue to work with Fleet, acquisition programs, and technical authorities to review and provide comments on issues, risks, and opportunities so as minimize the cost and risk to the Navy. - Continue meetings with NATO and foreign Navy data exchange partners to leverage lessons learned on afloat environmental compliance. - Continue development of environmental equipment/system requirements documentation, design criteria/ guidance, standards, and certification protocols based on evolving regulations and policy.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue to perform annual assessments of emergent air and water emission processes and technologies to enable effective compliance at minimal life cycle cost and risk to operations. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No change in funding.					
Title: Liquid Wastes	2.781	2.781	3.000	0.000	3.000
Articles:	-	-	-	-	-
Description: This effort addresses liquid wastes in two (2) major areas: Oil Pollution Abatement and Non-Oily Waste. Funding will be utilized to assess new commercial off-the-shelf (COTS), modified COTS, and developmental products and technologies for application to Navy ships and submarines. The funding will also be utilized to develop and demonstrate detailed system and performance specifications and design guidance for the acquisition of cost effective shipboard liquid waste management solutions that meet existing and anticipated environmental requirements within the constraints of shipboard performance, reliability, and warship-unique requirements. In addition, the effort will seek common solutions across platforms, and where possible, across the Fleet to provide lifecycle cost savings, logistical efficiency, and improved Fleet familiarity. ***FY 2023 Plans:*** Continue assessments of emergent COTS Marine Pollution Control processes and technologies that would enable effective compliance at minimal life cycle cost and risk to operations. Identify systems for detailed acquisition and evaluation Oil Pollution Abatement: - Continue shipboard evaluation of a commercial centrifugal OWS. - Initiate Ship Change Document (SCD) for centrifugal OWS implementation - Develop contract package for centrifugal OWS procurement to support transition to Fleet implementation - Identify and procure candidate submersible pumps for laboratory testing - Develop test plan for submersible pump laboratory evaluation. - Complete ASTM testing to evaluate cleaning efficacy of selected bilge cleaners - Establish requirements for bilge cleaners based on results of testing. - Conduct environmental tests (i.e., shock, vibration, electromagnetic interference (EMI) tests) of a Oil Content Monitor (OCM) that utilizes UV-fluorescence detection technology.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Non-Oily Waste: - Continue laboratory evaluation of alternative vacuum pumps. - Develop test plan for laboratory evaluation of pressed fittings. - Prepare for laboratory evaluation of pressed fittings. - Begin evaluation of effects of periodicity changes to pipe scale prevention product application on DDGs. - Conduct environmental tests (i.e., shock, vibration, and EMI tests) of hydrogen sulfide (H2S) detectors. - Review previous testing of sanitary fixture cleaners - Develop plan for laboratory testing of sanitary fixture cleaners - Conduct laboratory testing of sanitary fixture cleaners.					
FY 2024 Base Plans: Oil Pollution Abatement: - Continue shipboard evaluation of centrifugal OWS - Develop Integrated Logistics Support (ILS) for centrifugal OWS implementation - Demonstrate membrane regeneration software end evaluate alternate membrane cleaners - Identify oil water separators for small ships to support next generation Modified Off the Shelf (MOTS) OPA technology evaluations - Conduct laboratory evaluation of submersible pumps - Develop and issue bilge cleaner RFI - Evaluate responses to bilge cleaner RFI - Develop draft bilge cleaner CID - Determine suitability of alternative transfer pumps - Develop transfer pump test protocol and strategy Non-Oily Waste: - Complete laboratory evaluation of alternative vacuum pumps - Begin laboratory evaluation of pressed fittings - Continue evaluation of effects of pipe scale prevention product application periodicity changes on DDGs - Develop CID for hydrogen sulfide detectors					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY24 increase ($0.219M) supports conducting three (3) significant laboratory evaluations (alternative vacuum pump completion, pressed fittings, and submersible pumps) while continuing two (2) shipboard evaluations (pipe scale prevention product application periodicity changes and centrifugal OWS).					
Title: Hazardous Material Control and Management ***Articles:*** ***Description:*** A wide variety of Hazardous Materials (HM) are used to construct, operate and maintain Navy ships and submarines. These HMs include cleaning compounds, solvents, adhesives, sealants, corrosion preventive compounds, acids, alkalis, oxidizers, lubricants, functional fluids, and many other products. Hazardous Material Control and Management (HMC&M) addresses environmental, safety, and health risks to ship construction workers, Ship's Force (S/F), and shipyard workers. ***FY 2023 Plans:*** - Continue assessments of emergent COTS HM management processes and pollution prevention technologies that would enable effective compliance at minimal life cycle cost and risk to operations. - Continue to identify HM control and pollution prevention systems for detailed acquisition and evaluation. - Continue to assess less hazardous or non-hazardous substitutes for high-risk HM regulated under the Toxic Substance Control Act (TSCA). - Continue identifying and implementing alternatives to known human carcinogens (KHC) ***FY 2024 Base Plans:*** - Continue assessments of emergent COTS HM management processes and pollution prevention technologies that would enable effective compliance at minimal life cycle cost and risk to operations. - Continue to identify HM control and pollution prevention systems for detailed acquisition and evaluation. - Continue to assess less hazardous or non-hazardous substitutes for high-risk HM regulated under TSCA. - Continue to identify and implement alternatives to KHC ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No change in funding.	0.900 -	0.900 -	0.900 -	0.000 -	0.900 -
Title: Solid Waste Management ***Articles:***	1.100 -	1.291 -	2.276 -	0.000 -	2.276 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Solid Waste Management (SWM) supports the Act to Prevent Pollution from Ships (APPS), which regulates all garbage discharges from ships at sea. ***FY 2023 Plans:*** - Continue to evaluate innovative SWM processes and technologies for surface ships and submarines that would enable effective compliance at minimal life cycle cost and risk to operations. - Continue to perform shipboard evaluation of waste processing equipment for special solid waste (e.g., Feminine Hygiene Products, Pilot Urine bags, etc.) on large ship. - Modify waste processing equipment for special solid waste based on SHIPEVAL results. ***FY 2024 Base Plans:*** - Continue to evaluate innovative SWM processes and technologies for surface ships and submarines that would enable effective compliance at minimal life cycle cost and risk to operations. - Conduct Navy ship environmental testing of Navy Prototype solid waste system. - Perform evaluation of waste processing equipment for special solid waste (e.g., Feminine Hygiene Products, Pilot Urine bags, etc.) sized for medium ship. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase ($0.985M) due to installation costs and documentation related to shipboard evaluation of Navy prototype solid waste system for next generation plastic waste processors, and procurement of special solid waste processing equipment for laboratory evaluation.					
Title: Ballast Water Management	2.737	3.245	3.623	0.000	3.623
Articles:	-	-	-	-	-
Description: The National Invasive Species Act of 1996 (NISA) requires the Secretary of Defense to implement a Ballast Water Management (BWM) program to minimize the risk of introduction of non-indigenous species (NIS) and pathogens from releases of ballast water from seagoing vessels of the DoD. ***FY 2023 Plans:*** - Continue assessments of emergent COTS electro-chlorination and ultraviolet (UV) based ballast water treatment systems (BWTSs) that would enable effective compliance at minimal life cycle cost and risk to operations. - Finalize fabrication of a modified compact-sized commercial UV BWTS.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Test the modified compact-sized commercial UV BWTS performance in a shipboard environment. - Perform shock, vibration, and electromagnetic testing of the modified compact-sized commercial UV BWTS. - Begin fabrication of a modified standard-sized commercial UV BWTS. ***FY 2024 Base Plans:*** - Continue assessments of emergent COTS electro-chlorination and UV based BWTSs that would enable effective compliance at minimal life cycle cost and risk to operations. - Incorporate all modifications required on the modified compact-sized commercial UV BWTS into a technical data package based on operational and military standard tests to finalize the design for future in-service procurements. - Finalize fabrication of a modified standard-sized commercial UV BWTS. - Initiate operational, shock, vibration, and electromagnetic tests of the modified standard-sized commercial UV BWTS. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase ($0.378M) supports the testing of the modified standard-sized commercial UV based BWTS. Due to the standard-size system size and flow rates required for larger vessels, specialty testing platforms will be required to accomplish testing planned.					
Title: Copper-Free and Low Copper Antifouling	0.242	0.250	0.232	0.000	0.232
Articles:	-	-	-	-	-
Description: The copper discharges from underwater hull coatings remain a regulatory concern. The effort focuses on characterizing advanced coating systems (copper-containing, copper-free, and low copper) and their suitability for Navy-unique operational factors such as speed time profiles, drydocking intervals, and maintenance practices. The biofouling pressure at Navy homeports is also being characterized in order to inform hull and, especially, propeller cleaning scheduling. ***FY 2023 Plans:*** - Monitor test band coating system performance on DDG-51 Class ship. - Continue evaluation of performance of advanced coating systems. - Continue assessing emergent commercial antifouling coatings. - Continue biofouling pressure surveys of Naval Station Norfolk and Joint Expeditionary Base Little Creek.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate biofouling pressure surveys to Naval Station San Diego and Naval Station Mayport. ***FY 2024 Base Plans:*** - Preliminary report on test band coating system performance on DDG-51 Class ship. - Continue evaluation of performance of test band coating system performance on DDG-51 Class ship. - Continue assessing emergent commercial antifouling coatings. - Continue biofouling pressure surveys of Naval Station San Diego and Naval Station Mayport - Initiate evaluation of aged coatings: biocide leaching, effectiveness, and environmental impact. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 decrease ($0.018M) due to completion of installation of test band on DDG-51 Class ship.					
Accomplishments/Planned Programs Subtotals	9.315	10.051	11.615	0.000	11.615

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

RDT&E Contracts are Competitive Procurements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 0401 / *Shipboard Waste Mgmt*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ancillary Hardware Development	Various	Misc. Contracts : Not Specified	19.149	0.000		0.000		0.000		-		0.000	0.000	19.149	Continuing
Primary Hardware Development	C/CPFF	Oceaneering : Not Specified	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	Continuing
Systems Engineering	C/CPFF	John J. McMullen & Son : Not Specified	4.487	0.000		0.000		0.000		-		0.000	0.000	4.487	Continuing
		Subtotal	24.636	0.000		0.000		0.000		-		0.000	0.000	24.636	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	SPAWAR : Charleston, SC	10.838	0.000		0.000		0.000		-		0.000	0.000	10.838	Continuing
		Subtotal	10.838	0.000		0.000		0.000		-		0.000	0.000	10.838	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NSWCCD, Bethesda, MD : Bethesda, MD	242.384	7.312	Oct 2021	7.776	Oct 2022	8.870	Oct 2023	-		8.870	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NRL,Wash,DC : Wash,DC	34.124	0.163	Oct 2021	0.050	Oct 2022	0.050	Oct 2023	-		0.050	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWCPD, Philadelphia, PA : Philadelphia, PA	1.972	1.217	Oct 2021	1.300	Oct 2022	1.770	Oct 2023	-		1.770	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	SPAWARSYSCEN : SD,CA	12.308	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	Misc. Govt Labs : TBD	23.780	0.100	Mar 2022	0.100	Oct 2022	0.100	Oct 2023	-		0.100	0.000	24.080	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 0401 / *Shipboard Waste Mgmt*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	Misc. Contracts : TBD	14.453	0.500	Mar 2022	0.500	Oct 2022	0.500	Oct 2023	-		0.500	0.000	15.953	-
		Subtotal	329.021	9.292		9.726		11.290		-		11.290	Continuing	Continuing	N/A

Remarks

Increased funding to NSWCCD for Ballast Water Management (BWM) tasking related to testing of both commercial and modified commercial BWTSs; for identification and testing of Capture and Clean Hull Cleaning Technology; and to investigate and spearhead design, integration and testing of innovative solid waste equipment. FY20 and 21 Miscellaneous Contract funding for BWM and Hull Cleaning Technology to be identified in FY20.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAVSEA HQ : Washington, DC	0.385	0.023	Oct 2021	0.025	Oct 2022	0.025	Oct 2023	-		0.025	Continuing	Continuing	Continuing
SBIR Assessment	Allot	ONR : Not Specified	0.427	0.000	Oct 2021	0.300	Oct 2022	0.300	Oct 2023	-		0.300	0.000	1.027	Continuing
		Subtotal	0.812	0.023		0.325		0.325		-		0.325	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	365.307	9.315		10.051		11.615		-		11.615	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

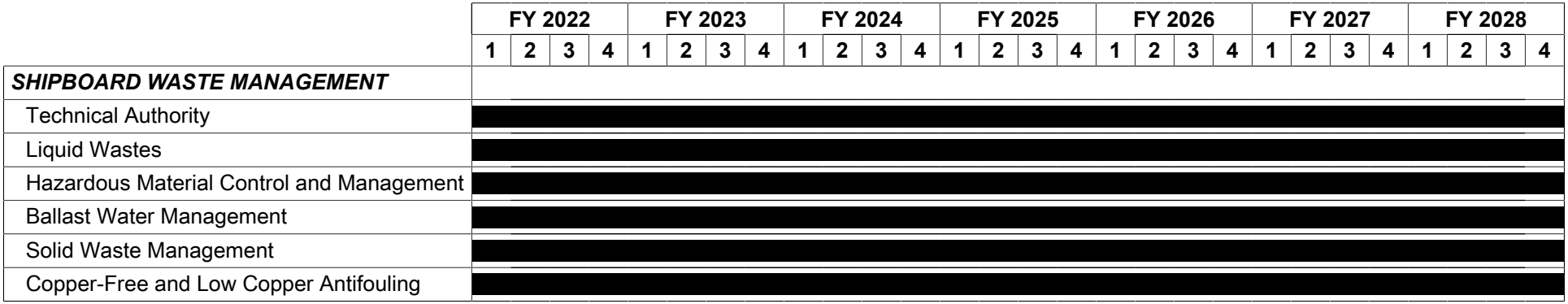

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SHIPBOARD WASTE MANAGEMENT				
Technical Authority	1	2022	4	2028
Liquid Wastes	1	2022	4	2028
Hazardous Material Control and Management	1	2022	4	2028
Ballast Water Management	1	2022	4	2028
Solid Waste Management	1	2022	4	2028
Copper-Free and Low Copper Antifouling	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*				Project (Number/Name) 0817 / *Environmental Sustainability Development (NESDI)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0817: *Environmental Sustainability Development (NESDI)*	68.891	5.359	5.197	6.010	-	6.010	5.986	5.959	6.077	6.199	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The vision outlined in "A Design for Maintaining Maritime Superiority, Version 2.0" (December 2017) and "2018 National Defense Strategy of the United States of America" is for our Navy to become more lethal, resilient and a rapidly innovating joint force. We must maintain a fleet that is trained ready to operate and fight decisively. Today's reality requires training and operating within environmental constraints (national and international laws and agreements) and searching for alternatives to comply with and alleviate those constraints. Moreover, as we develop new systems and technologies in support of the National Defense Strategy, the Navy must anticipate and address potential environmental constraints which could in the future adversely impact our ability to protect and sustain our forces at home and abroad.

This program identifies pervasive Navy shore side environmental requirements and develops and validates information, new processes, and technologies that address requirements that pose significant impact on Naval shore activities in complying with environmental laws, regulations, orders, and policies. The goal of the program is to maximize opportunities for significant cost savings while minimizing personnel liabilities, operational costs, and regulatory oversight and preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions in support of the Navy's transformational strategy.

Environmental Enabling Capabilities -2 (EEC-2) MAXIMIZE TRAINING AND TESTING RANGE REQUIREMENTS WITHIN ENVIRONMENTAL CONSTRAINTS: This capability addresses environmental impacts and restrictions at Navy land and sea ranges, including munitions testing and manufacturing, to ensure Navy ranges are available to conduct required training and testing operations for the Fleet. Investments in EEC-2 provide validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges to maximize the availability and utilization of the ranges. The results support operational readiness by providing the tools and technologies necessary for sustaining and managing Navy land and sea ranges related to unexploded ordnance (UXO) and munitions, encroachment, air quality, airborne noise, water quality, and wetlands. Capabilities gained include the ability to assess and determine the risks from underwater UXO, the evaluation and prioritization of ordnance contaminated sites for evaluation in environmental programs and the implementation of range specific best management practices by evaluating and modeling available process, procedures, and technologies.

Environmental Enabling Capabilities-3 (EEC-3)PLATFORM MAINTENANCE AND REPAIR WITH MINIMAL ENVIRONMENTAL FOOTPRINT: This capability focuses on minimizing or eliminating environmental impact related to Navy and Marine Corps weapon system repair and maintenance operations. Investments in EEC-3 provide valid knowledge, models, processes, and technologies to minimize regulated emissions, discharges and hazardous material usage during the repair and maintenance of ships, submarines, and surface/sub-surface vehicles and aircraft and air vehicles. The program supports Fleet operational readiness and Navy acquisition communities by investing in information to understand emerging environmental requirements and to develop innovative processes and technologies that result in savings while reducing the fleet environmental constraints related to platform maintenance. Capabilities and benefits gained include, but are not limited to, the reduction in the usage of heavy metals used in metal finishing (chromium and cadmium), reduced hazardous air pollutant (HAP) emissions, the development of best management practices

and tools to minimize the use of hazardous materials, and the generation of hazardous wastes associated with maintaining and repairing ships, submarines, aircraft, and unmanned vehicles. Results of program investments will be leveraged across weapon system and platform acquisition to ensure continued reduction in lifecycle costs and long-term environmental compliance burdens to the Fleet.

Environmental Enabling Capabilities-4 (EEC-4). SUPPORT SHORE READINESS WITHIN ENVIRONMENTAL CONSTRAINTS: Naval shore establishment requires the capability to operate and maintain facilities and provide waterfront and airfield services to the fleet while complying with applicable environmental regulations and minimizing environmental impacts and costs. The program invests in knowledge and innovative processes and technologies that minimize infrastructure and operational costs, regulated emissions, while minimizing discharges and hazardous material usage from ship (waterfront) and aviation operations. Capabilities and benefits gained under EEC-4 include, reduced costs associated with wastewater treatment, elimination/reduction in the use of HAPs, ozone depleting substances (ODSs), volatile organic compounds (VOCs) and the associated reporting requirements, reduced hazardous waste and disposal costs, and improved storm water management.

Environmental Enabling Capabilities-5 (EEC-5). COST-EFFECTIVE MANAGEMENT OF ENVIRONMENTAL REGULATORY REQUIREMENTS: The environmental compliance regulations require base managers to permit, monitor and report on many processes associated with weapon system and platform operations. Naval shore environmental managers require the capability to efficiently and cost effectively manage these compliance requirements. Under EEC-5, the program invests in improved data collection, methods, and models to assess environmental impacts and ecological risk assessments of Naval Operations on harbors, U.S. waterways, and surrounding communities. Benefits include gaining standardized technical environmental management improvements/techniques related to source control, assessment, and monitoring. EEC-5 also provides validated knowledge, models, processes and technologies to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: EEC-2,Maximize Training & Testing Requirements Within Environmental Constraints	0.665	0.357	0.357	0.000	0.357
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs of Navy training and test ranges to maximize the availability and utilization of the ranges. - Continue Integrated Analytical Approach to Transition from Active to Passive Treatments at Munitions Sites. - Complete demonstration of Robust Caisson Structure to Reduce Blast Effects from Underwater Blow-In-Place.					
FY 2024 Base Plans: - Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs of Navy training and test ranges to maximize the availability and utilization of the ranges. - Complete Integrated Analytical Approach to Transition from Active to Passive Treatments at Munitions Sites.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No change in funding.					
Title: EEC-3,Platform Maintenance and Repair With Minimal Environmental Footprint	1.395	1.490	1.606	0.000	1.606
Articles:	-	-	-	-	-
FY 2023 Plans: -Continue evaluations and demonstrations of innovative solutions for difficult and persistent aviation and shipyard platform sustainment issues related to hexavalent chrome, cadmium, volatile organic compounds (VOC) hazardous air pollutants (HAP) and other hazardous compounds at Naval Aviation Systems Command Fleet Readiness Centers and the Navy's shipyards. - Continue development and implementation of Methods to Reduce Sealant Waste in Fleet/Depot Level Operations, Advanced Anodize Repair. - Complete Dry Ice Paint Removal and Cleaning, Chrome-free, Low-VOC and Fast-drying Single- and Two-component Primers, Minimizing Hazardous Waste from Expired Paints and Associated Solvents from Ships Supply. ***FY 2024 Base Plans:*** - Continue evaluations and demonstrations of innovative solutions for difficult and persistent aviation and shipyard platform sustainment issues related to hexavalent chrome, cadmium, volatile organic compounds (VOC) hazardous air pollutants. - Continue Advanced Anodize Repair. - Complete Development and Implementation of Methods to Reduce Sealant Waste in Fleet/Depot Level Operations. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase ($0.116M) supports additional costs of Methods to Reduce Sealant Waste in Fleet/Depot Level Operations and Advance Anodize Repair.					
Title: EEC-4, Support Shore Readiness within Environmental Constraints	1.531	1.510	1.699	0.000	1.699
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: - Continue evaluations and demonstrations of innovative solutions to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. - Continue Detection Methodology and Treatment Train Technology for PFAS Removal in Bilge and Oily Wastewater (BOW),Real-Time Multi-Contaminant Detection System (RMDS), Characterization of Antifouling Paint and Environmental Loading with Navy Dome System (CHROME DOME). - Complete Developing Lines of Evidence to Support Nutrient Compliance at Navy shipyards, Remotely Operated Oil Spill Response Equipment: Down-Selection and Demonstration at a Navy Port, Effluent Copper Quantification by Optical or Voltammetric Detection and Analysis, Locating and Quantifying Groundwater Surface Water Connections Using Distributed Temperature Sensing. ***FY 2024 Base Plans:*** - Continue evaluations and demonstrations of innovative solutions to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. - Continue Characterization of Antifouling Paint and Environmental Loading with Navy Dome System (CHROME DOME). - Complete Detection Methodology and Treatment Train Technology for PFAS Removal in Bilge and Oily Wastewater (BOW), Real-Time Multi-Contaminant Detection System (RMDS). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase ($0.189M) supports the additional costs of Characterization of Antifouling Paint and Environmental Loading with Navy Dome System (CHROME DOME), and Detection Methodology and Treatment Train Technology for PFAS Removal in Bilge and Oily Wastewater (BOW), Real-Time Multi-Contaminant Detection System (RMDS).					
Title: EEC-5,Cost-Effective Management of Environmental Regulatory Requirements	1.768	1.840	2.348	0.000	2.348
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost of compliance with regulations and management of coastal contamination and contaminated sediments - Continue Chronic toxicity and bioaccumulation evaluation of multiple PFAS for benthic and pelagic species relevant to marine ecological risk assessment, Closed Loop, In Situ Soil Flushing at PFAS-Impacted Source Zones, An Integrated Navy Approach to Estimate Risk and Cleanup Goals for Radionuclides Associated with Buildings at Current and Former Navy Installations - Complete Demonstrating the Use of a Novel, Hybrid Polyelectrolyte/Hydrophilic Polymer for In situ PFAS Treatment Applications, Low-profile Integrated Porous Pretreatment Swale (LIPPS) for Metals Treatment in Industrial Areas, Rapid Pathogen Detection in Drinking and Surface Waters, Evaluating potential effects to marine biota from small-scale, legacy radioactive objects, Demonstration and Application of Amendments Targeting Comingled Organics and Metals in Sediments, Initiation Decision Report (IDR) for Addressing Opportunistic Premise Plumbing Pathogens at Navy Installations ***FY 2024 Base Plans:*** - Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost of compliance with regulations and management of coastal contamination and contaminated sediments - Continue Chronic toxicity and bioaccumulation evaluation of multiple PFAS for benthic and pelagic species relevant to marine ecological risk assessment, Closed Loop, In Situ Soil Flushing at PFAS-Impacted Source Zones - Complete An Integrated Navy Approach to Estimate Risk and Cleanup Goals for Radionuclides Associated with Buildings at Current and Former Navy Installations ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase ($0.508) supports additional costs of bioaccumulation evaluation of multiple PFAS for benthic and pelagic species relevant to marine ecological risk assessment, Closed Loop, In Situ Soil Flushing at PFAS-Impacted Source Zones.					
Accomplishments/Planned Programs Subtotals	5.359	5.197	6.010	0.000	6.010

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This project is categorized as Non-ACAT (Non Acquisition). The project delivers a broad spectrum of products that require a variety of acquisition processes to implement. Equipment products for naval stations and other mission funded activities are often procured directly through the base operating budget. Equipment products for Shipyards and other Navy Working Capital Fund (NWCF) activities costing over $250K are procured through their Capital Investment Program (CIP). For both types of activities, equipment products costing less than $250K, and process changes not requiring the purchase of new equipment such as consumable material or product substitutions, are funded through the activity's operating budgets. Occasionally there is a technology that must be implemented as a specialized facility. These are acquired through the Military Construction (MILCON) Program. All these acquisition processes are pursued using a common strategy that satisfies the needs of all the critical stakeholders: 1) fleet end user; 2) funding sponsor for the Navy end user; 3) other stakeholders with cognizance over the Navy process or operation being changed, 4) cognizant environmental federal, state, and local regulators; and 5) the private or government organization that will produce the product.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EEC 2	Various	EXWC : PT HUENEME, CA	7.918	0.350	Oct 2021	0.357	Oct 2022	0.357	Oct 2023	-		0.357	Continuing	Continuing	Continuing
EEC 2	Various	SSC : SAN DIEGO, CA	7.184	0.315	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
EEC 3	WR	NAWC : PATUXENT RIVER, MD	2.698	0.130	Mar 2022	0.130	Mar 2023	0.130	Mar 2024	-		0.130	Continuing	Continuing	Continuing
EEC 3	Various	NSWC : BETHESDA, MD	4.614	0.175	Feb 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
EEC 3b	Various	EXWC : PT HUENEME, CA	1.768	0.160	Mar 2022	0.160	Mar 2023	0.160	Mar 2024	-		0.160	Continuing	Continuing	Continuing
EEC 4	Various	EXWC : PT HUENEME, CA	10.320	0.701	Mar 2022	0.670	Mar 2023	0.680	Mar 2024	-		0.680	Continuing	Continuing	Continuing
EEC 4	Various	NSWC : BETHESDA, MD	5.426	0.065	Nov 2021	0.065	Nov 2022	0.100	Nov 2023	-		0.100	Continuing	Continuing	Continuing
EEC 4a	Various	NIWC : SAN DIEGO, CA	5.283	0.765	Apr 2022	0.775	Feb 2023	0.919	Feb 2024	-		0.919	Continuing	Continuing	Continuing
EEC 5	Various	EXWC : PT HUENEME, CA	5.829	0.535	Oct 2021	0.600	Oct 2022	0.830	Oct 2023	-		0.830	Continuing	Continuing	Continuing
EEC 5	Various	NIWC : SAN DIEGO, CA	3.669	0.643	Oct 2021	0.730	Oct 2022	1.005	Oct 2023	-		1.005	Continuing	Continuing	Continuing
EEC 5	Various	NAWC : PATUXENT RIVER, MD	1.702	0.115	Jun 2022	0.115	Jun 2023	0.115	Jun 2024	-		0.115	Continuing	Continuing	Continuing
EEC 5	Various	NSWC : BETHESDA, MD	3.731	0.165	Jan 2022	0.060	Jan 2023	0.061	Jan 2024	-		0.061	Continuing	Continuing	Continuing
EEC 5	WR	NAWCWD : CHINA LAKE, CA	1.982	0.185	Dec 2021	0.185	Dec 2022	0.187	Dec 2023	-		0.187	Continuing	Continuing	Continuing
EEC 5	WR	NAWC : LAKE HURST, NJ	1.221	0.125	Nov 2021	0.150	Nov 2022	0.150	Nov 2023	-		0.150	Continuing	Continuing	Continuing
EEC 3	WR	FRC - SE : JACKSONVILLE, FL	3.350	0.635	May 2022	0.635	May 2023	0.721	May 2024	-		0.721	Continuing	Continuing	Continuing
EEC 3	Various	NSWC : San Diego, CA	0.060	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EEC 3	WR	FRC - CE : Cherry Point, NC	0.715	0.100	Jun 2022	0.100	Jun 2023	0.100	Jun 2024	-		0.100	Continuing	Continuing	Continuing
EEC 3	Various	FRC-SW : San Diego, CA	1.421	0.195	Mar 2022	0.195	Mar 2023	0.195	Mar 2024	-		0.195	Continuing	Continuing	Continuing
EEC 3	WR	NRL : Washington DC	0.000	0.000		0.270	Feb 2023	0.300	Feb 2024	-		0.300	Continuing	Continuing	Continuing
		Subtotal	68.891	5.359		5.197		6.010		-		6.010	Continuing	Continuing	N/A

Remarks

Performing Activities: Naval Surface Warfare Center, Carderock Division (NSWC/CD); Engineering and Expeditionary Warfare Center (EXWC), Port Hueneme, CA; Naval Surface Warfare Center, Indian Head Division (NSWC/IH); Space and Warfare Systems Center, San Diego (NIWC/SD); Naval Air Warfare Center Aircraft Division Patuxent River (NAWCAD/PAX); Naval Air Warfare Center (NAWCWD/China Lake); Naval Air Warfare Center Aircraft Division Lakehurst (NAWCAD/Lakehurst); Fleet Readiness Center Southeast, Jacksonville FL (FRC-SE); Fleet Readiness Center Southwest, San Diego (FRC-SW), Fleet Readiness Center East, Cherry Point (FRC-CE). Total Prior Years Cost: Subtotal does not include performing activities from prior years that are no longer performing activities. Award Dates: About 55% of the project is executed via contracts awarded by the performing activities. More rigorous contracting, funding and performer work induction processes are slightly increasing project management costs. Contracting and financial management offices across the performing organizations may be understaffed. Projects are derived from field level needs and awarded competitively to performing organizations, the portfolio mix of cost category/performing organization naturally changes from fiscal year to fiscal year. Due to this, individual line items in the R-3 will increase at greater than a 2% escalation factor.

Explanation of increases/decreases greater than 2% between FY 2023 and FY 2024:
- EEC3 FRC-SE Jacksonville FL increased from $0.635M to $0.721M due to increase in planned tasks for continuing projects.
- EEC3 NRL Washington DC increased from $0.270M to $0.300M due to increase in field work for continuing projects.
- EEC4 NSWC Bethesda MD increased from $0.065M to $0.100M due to increase in field work for continuing projects.
- EEC4a NIWC San Diego increased from $0.775M to $0.919M due to an increase in planned tasks for continuing projects.
- EEC5 EXWC Port Hueneme CA increased from $0.600M to $0.830M due to an increase in field work for continuing projects.
- EEC5 NIWC San Diego CA increased from $0.730M to $1.005M due to increase in field work for continuing projects.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	68.891	5.359		5.197		6.010		-		6.010	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

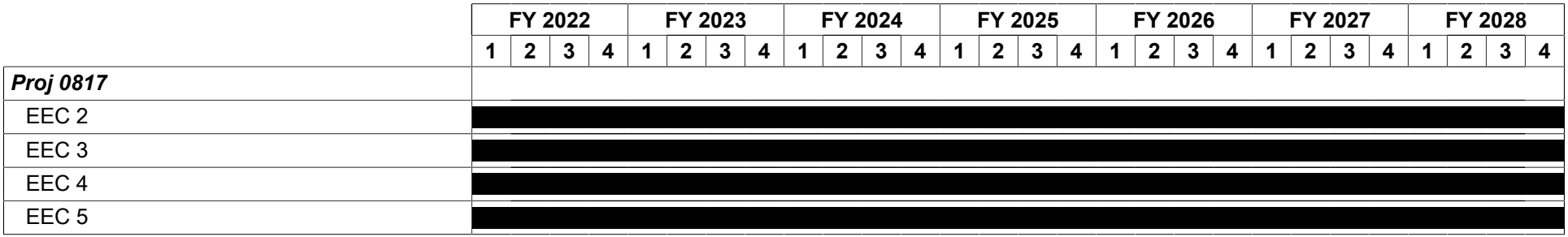

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0817				
EEC 2	1	2022	4	2028
EEC 3	1	2022	4	2028
EEC 4	1	2022	4	2028
EEC 5	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 2549 / *Environmental Restoration*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2549: *Environmental Restoration*	0.000	7.550	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.550
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

PFAS Strategic Projects FY22 to Address Navy's Challenges with PFAS Site Management
Expeditionary Warfare Center and Naval Facilities Engineering Command HQ, in consultation with the Environmental Restoration Managers, have developed eight (8) projects that are important for the Navy's ability to address the challenges related to PFAS site investigations and treatments. PFAS behavior in the environment is still not well understood and treating PFAS in soil and groundwater remains challenging because the carbon-fluorine bonds in these compounds are extremely difficult to break. The goal of this effort is to further the understanding of PFAS behavior in the environment at Navy sites, and to develop and demonstrate sampling tools, characterization methods, and promising treatment or destruction technologies for PFAS. The eight projects are:

1. PFAS source zone characterization and limited sampling
2. PFAS groundwater plume modeling and risk evaluation guidance
3. Design and demonstration of a passive flux meter for PFAS remedial investigation
4. Characterizing PFAS sources to surface water receptors at IR sites
5. Innovative destructive hydrothermal technologies for PFAS
6. Fractionation of PFAS-impacted groundwater
7. Injection and infiltration of stabilizers for in-situ sequestration of PFAS sources
8. Assessment of PFAS mass transfer via sources leaching into soil and groundwater

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Develop PFAS site investigations and treatments	7.550	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	7.550	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 2549 / *Environmental Restoration*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This project is categorized as Non-ACAT (Non Acquisition)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 2549 / *Environmental Restoration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EEC 2	Various	EXWC : PT HUENEME, CA	0.000	7.550	Sep 2022	0.000		0.000		-		0.000	0.000	7.550	-
		Subtotal	0.000	7.550		0.000		0.000		-		0.000	0.000	7.550	N/A

Remarks

Performing Activities: Engineering and Expeditionary Warfare Center (EXWC), Port Hueneme, CA

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	7.550		0.000		0.000		-		0.000	0.000	7.550	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 2549 / *Environmental Restoration*

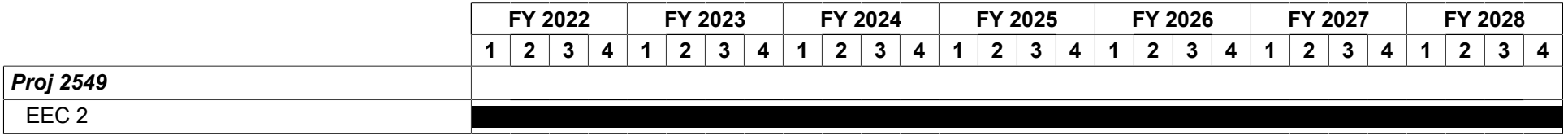

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 2549 / *Environmental Restoration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2549				
EEC 2	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*				Project (Number/Name) 9204 / *Marine Mammal Research*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
9204: *Marine Mammal Research*	41.518	5.926	6.399	6.832	-	6.832	6.831	6.963	7.088	7.230	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Navy has been and will continue to be subject to litigation with regard to the potential injuring, killing or biologically significant disturbance of marine animals by the use of intense underwater sound. Since Fleet operation and training areas coincide with known or probable habitats, migration routes, or breeding areas of marine mammals and other protected marine species, the possibility exists that such incidents are likely to continue in the future. The increasing public interest and pressure has resulted in escalating Fleet costs. For example, Fleet and SYSCOM development activities have been interrupted; modified, or altogether cancelled and environmental regulations have, among other things, required new ship construction shock trials to obtain Federal permits and conduct extensive environmental planning that can take several years to complete. The incorporation of mitigation measures in Fleet training operations to minimize the potential adverse effects on protected marine animals can significantly reduce the realism of these operations. In addition, the testing, evaluation, and deployment of new sonar detection and monitoring systems that use active acoustics are under intense public scrutiny for their potential adverse effects on whales and other marine mammals. Navy needs scientific evidence to substantiate its claims of limited or inconsequential adverse effects to marine life from operations.

This project primarily focuses on the development of planning, monitoring, and mitigating tools to aid the Fleet in minimizing contact with and the potential harassment of protected marine animals during operations, exercises, training, and undersea surveillance and weapons testing. These new capabilities will encompass historical and newly acquired data and analytical models that together can predict marine animal habitats (where they are likely to be), and their natural and expected behavior (diving patterns, prey localization, calling activity, etc.). This project consists of three major areas that will help ensure Navy compliance with the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA).
These areas are (1) Marine Ecology and Population Dynamics - determine the likelihood of the presence of marine mammals or other protected species by developing habitat and ecological models. Refine marine animal survey techniques to optimize the accuracy of abundance estimates in small ocean regions of Navy interest.
(2) Criteria, Thresholds, and Mitigation - Establish criteria and thresholds from which to measure potential impact on marine mammals and other marine species from Navy training operations. Determine the effectiveness and usefulness of various mitigation measures in relation to the potential impact of Navy operations on marine mammals; and (3) Mitigation Methodologies - Determine the observation, detection and classification measures required to develop effective monitoring and mitigation procedures for Fleet and SYSCOM use. Focus on improving marine animal monitoring capabilities over current methods by developing new technologies or improving existing technologies that improve monitoring and mitigation effectiveness, reduce cost and minimize impacts on readiness activities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: Marine Ecology and Population Dynamics	1.134	1.134	1.384	0.000	1.384
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Within the area of 'Marine Ecology and Population Dynamics', ongoing work covers topics such as density estimation from passive acoustic data, standards/metrics development and development of an automated sonar detector to standardize analysis of acoustic data. ***FY 2023 Plans:*** Ongoing studies that are expected to be completed by the end of FY 2023: -MSM4PCoD: Marine Species Monitoring for the Population Consequences of Disturbance -Capability enhancements for Tethys, a passive acoustic metadata workbench Ongoing studies that will continue into FY 2024: -ACCURATE: ACoustic CUe RATEs for passive acoustic density estimation -Demonstration and validation of passive acoustic density estimation for right whales -Combining global OBS and CTBTO recordings to estimate abundance and density of fin and blue whales In addition, studies are expected to be initiated in FY2023 in response to needs collected from Navy personnel in FY 2022. ***FY 2024 Base Plans:*** Ongoing studies that are expected to be completed by the end of FY 2024: -ACCURATE: ACoustic CUe RATEs for passive acoustic density estimation -Demonstration and validation of passive acoustic density estimation for right whales Ongoing studies that will continue into FY 2025: -Combining global OBS and CTBTO recordings to estimate abundance and density of fin and blue whales -RAVEN-X: Enhancing the efficiency of large-scale bioacoustic analyses -Cetacean Caller-ID [CETACID]: Validating approaches for identifying focal communication signals using acoustic recording tags -Climate change projects In addition, studies are expected to be initiated in FY2024 in response to needs collected from Navy personnel in FY 2023. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase ($0.250M) supports addressing climate change projects.					
Title: Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	3.577	4.050	4.233	0.000	4.233
Articles:	-	-	-	-	-
Description: Within the area of 'Criteria and Thresholds, Physiology and Behavior, and Effects of Sound', ongoing work covers topics such as hearing, temporary threshold shift, behavioral response studies, and effects from underwater explosions. ***FY 2023 Plans:*** Ongoing studies that are expected to be completed by the end of FY 2023: -Multi-spaced measurement of underwater sound fields from explosive sources (this project was extended due to COVID-19) -Temporary threshold shifts in underwater hearing sensitivity in aquatic turtles -Frequency-dependent, underwater, temporary threshold shift in California sea lions -Collection of In situ acoustic data for validation of US Navy propagation models of ship shock trial sound sources Ongoing studies that will continue into FY 2024: -Collection of auditory evoked potential hearing thresholds in minke whales (Balaenoptera acutorostrata) data on sea turtle hearing/TTS -Towards a mysticete audiogram using humpback whales' behavioral response thresholds data on mysticete hearing -Standardizing auditory evoked potential hearing thresholds with behavioral hearing thresholds -Loudness perception in killer whales (Orcinus orca); effects of temporal and frequency summation -Minimum sound pressure levels required for TTS during simulated continuously active sonar -3S4: Effects of continuous active sonar and longer duration sonar exposures -Behavioral response to SURTASS LFA sonar In addition, studies are expected to be initiated in FY2023 in response to needs collected from Navy personnel in FY 2022. ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Within the area of 'Criteria and Thresholds, Physiology and Behavior, and Effects of Sound', ongoing work covers topics such as hearing, temporary threshold shift, behavioral response studies, and effects from underwater explosions. Ongoing studies that are expected to be completed by the end of FY 2024: -Collection of auditory evoked potential hearing thresholds in minke whales (Balaenoptera acutorostrata) data on sea turtle hearing/TTS -Towards a mysticete audiogram using humpback whales' behavioral response thresholds data on mysticete hearing -Standardizing auditory evoked potential hearing thresholds with behavioral hearing thresholds -Loudness perception in killer whales (Orcinus orca); effects of temporal and frequency summation -Minimum sound pressure levels required for TTS during simulated continuously active sonar -Dolphin conditioned hearing attenuation Ongoing studies that will continue into FY 2024: -3S4: Effects of continuous active sonar and longer duration sonar exposures -Behavioral response to SURTASS LFA sonar -Effect of signal duration on perceived loudness in bottlenose dolphins and California sea lions In addition, studies are expected to be initiated in FY 2024 in response to needs collected from Navy personnel in FY 2023. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase ($0.183M) supports ongoing projects reaching the height of their effort (data collection and data analysis) along with some new projects expected to begin.					
Title: Mitigation Methodologies: Monitoring, New Technology, and Risk Assess ***Articles:*** ***Description:*** Within the area of 'Mitigation Methodologies', ongoing work covers demonstration and validation of new technologies for monitoring and mitigation. ***FY 2023 Plans:***	1.215 -	1.215 -	1.215 -	0.000 -	1.215 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Ongoing studies that will continue into FY 2024: -M3R (Marine Mammal Monitoring on Navy Ranges) -Improve Tag Attachment System for Remotely-Deployed Medium-Term Cetacean Tags No studies are scheduled to be completed by the end of FY2023. Studies are expected to be initiated in FY 2023 in response to needs collected from Navy personnel in FY 2022. ***FY 2024 Base Plans:*** Within the area of 'Mitigation Methodologies', ongoing work covers demonstration and validation of new technologies for monitoring and mitigation. Ongoing studies that are expected to be completed by the end of FY 2024: -Improve Tag Attachment System for Remotely-Deployed Medium-Term Cetacean Tags -Demonstrating suction-cup tag systems to support behavioral response studies (BRS) Ongoing studies that will continue into FY 2025: -M3R (Marine Mammal Monitoring on Navy Ranges) -Integration and field evaluation of the next generation high-fidelity sound and movement tags to investigate behavioral response ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No change in funding.					
Accomplishments/Planned Programs Subtotals	5.926	6.399	6.832	0.000	6.832

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

RDTEN Contracts are Competitive Procurements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	EXWC CA : Port Hueneme, CA	5.338	0.986	Oct 2021	1.005	Oct 2022	1.255	Oct 2023	-		1.255	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	SPAWAR CA : San Diego, CA	1.573	0.200	Oct 2021	0.204	Oct 2022	0.208	Nov 2023	-		0.208	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	SS/CPFF	MARECOTEL : Seabeck, WA	2.360	0.600	Oct 2021	0.400	Oct 2022	0.000		-		0.000	0.000	3.360	-
Developmental Test & Evaluation (DT&E)	Various	EXWC PH : Port Hueneme, CA	4.383	2.371	Jan 2022	3.039	Jan 2023	3.585	Oct 2023	-		3.585	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NAVAIR : Lakehurst, NJ	0.732	0.075	Oct 2021	0.075	Oct 2022	0.075	Nov 2023	-		0.075	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	EXWC : Port Hueneme, CA	2.128	0.714	Oct 2021	0.728	Oct 2022	0.742	Oct 2023	-		0.742	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NUWC RI : Newport, RI	11.851	0.300	Oct 2021	0.306	Oct 2022	0.312	Nov 2023	-		0.312	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NPGS : Monterey, CA	3.699	0.030	Oct 2021	0.030	Oct 2022	0.031	Nov 2023	-		0.031	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	NOAA: Various : La Jolla, CA	3.661	0.050	Oct 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NUWC : Newport, RI	0.700	0.300	Oct 2021	0.306	Oct 2022	0.312	Nov 2023	-		0.312	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	SS/CPFF	SPAWAR : San Diego, CA	5.093	0.300	Oct 2021	0.306	Oct 2022	0.312	Nov 2023	-		0.312	Continuing	Continuing	Continuing
		Subtotal	41.518	5.926		6.399		6.832		-		6.832	Continuing	Continuing	N/A

Remarks

Individual projects are derived from field level needs and awarded competitively to performing organizations, the portfolio mix of cost category/performing organization naturally changes from fiscal year to fiscal year. Increase due to planned FY 2023/2024 projects that will be awarded competitively by EXWC to performing organizations based on subject matter expertise required by Navy need.

The following increases are above 2% from FY 2023 to FY 2024:
- Developmental Test and Evaluation: EXWC: Port Hueneme, CA; Increase from $1.005M to $1.255M due to specific needs of climate change related projects.
- Developmental Test and Evaluation: EXWC: Port Hueneme, CA; Increase from $3.039M to $3.566M supports studying of behavioral response from SURTASS LFA and continuously active sonar (CAS).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 9204 / *Marine Mammal Research*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	41.518	5.926		6.399		6.832		-		6.832	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

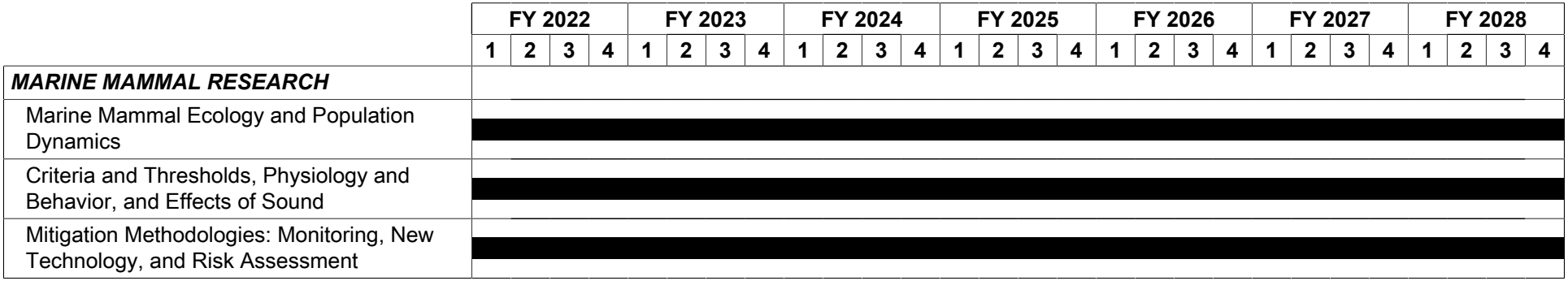

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MARINE MAMMAL RESEARCH				
Marine Mammal Ecology and Population Dynamics	1	2022	4	2028
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	1	2022	4	2028
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment	1	2022	4	2028