

ESTCP Funding Opportunities

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FY 2021 ESTCP Funding Opportunities

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DoD's Environmental Technology Programs

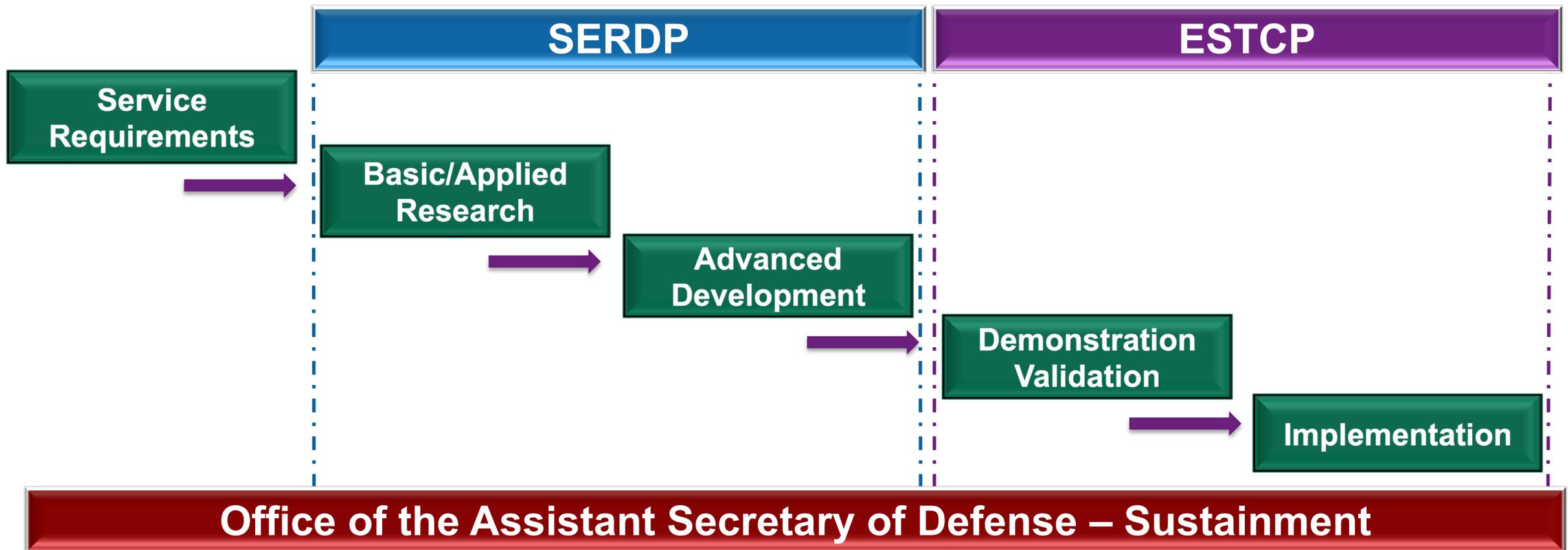


Science and Technology



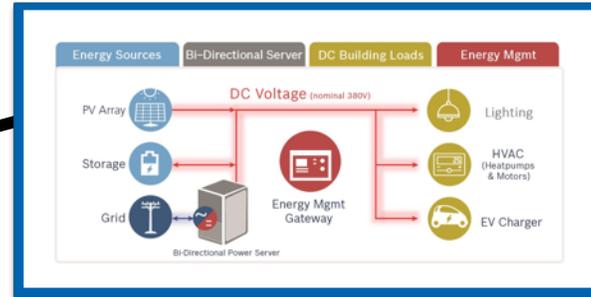
Demonstration and Validation

Environmental Technology Development Process

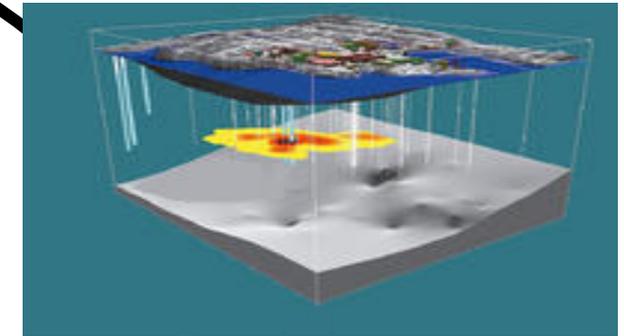


Program Area Management Structure

Weapons Systems & Platforms



Environmental Restoration



Installation Energy & Water



Resource Conservation & Resiliency



Munitions Response

Environmental Drivers

Sustainability of Ranges, Facilities, and Operations



**Threatened and Endangered Species
Maritime Sustainability**



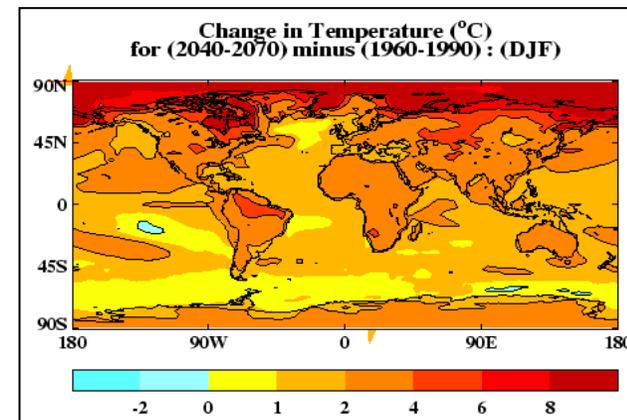
Toxic Air Emissions and Dust



**UXO & Munitions
Constituents**



Sustainable FOB



Changing Environment

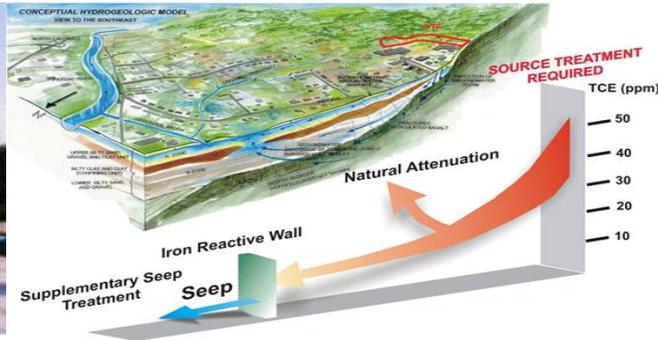


Noise

Environmental Drivers

Reduction of Current and Future Liability

Contamination from Past Practices



- Groundwater, soils and sediments
- Large UXO liability
- Emerging contaminants

Pollution Prevention to Control Life Cycle Costs



- Elimination of pollutants and hazardous materials in manufacturing maintenance and operations
- Achieve compliance through pollution prevention

ESTCP Program Goals

- Demonstrate Innovative Cost-Effective Environmental and Installation Energy Technologies
 - ◆ Capitalize on past investments
 - ◆ Transition technology out of the lab
- Promote Implementation
 - ◆ Direct technology insertion
 - ◆ Gain regulatory acceptance

 ***Priority: Needs of the DoD user community***

ESTCP Demonstrations

- Desired Technologies
 - ◆ Can significantly benefit from a demonstration on a DoD installation
 - ◆ Require a demonstration to properly assess the cost and performance of the technology
 - ◆ Will utilize information from the demonstration to accelerate commercialization and broader adoption
- Mature commercial technologies already in use or with well established operational cost and performance criteria are not appropriate for demonstration and validation

ESTCP Methodology

- Partner With Stakeholders and Test at DoD Facilities
 - ◆ Developer, regulators, and end-user
 - ◆ Direct transition
- Validate Operational Cost and Performance
 - ◆ Independent test and evaluation
 - ◆ Satisfy regulatory and user communities
- Identify DoD Market Opportunities
 - ◆ Technology transfer

Project Requirements

- Formal Demonstration Plans
 - ◆ Detailed performance objectives
 - ◆ Independent review
- Execution of Technology Demonstration
 - ◆ Collect cost and performance data
- Written Final Report Covering both Technical Performance and Cost
- Support for Transition
 - ◆ Regulatory/end-user acceptance
 - ◆ Guidance and training

ESTCP Solicitation Process



ESTCP Solicitation Dates

ESTCP Solicitations Released	January 7, 2020
Pre-proposals Due	March 5, 2020, 2:00 p.m. Eastern Time
Full Proposal Requested	June 2020
Full Proposals Due	August 2020
Briefings Before ESTCP Technical Committee	September 2020
Project Selection	October 2020
Project Initiation	Spring 2021

DoD Call for Proposals

- Call for Demonstration Projects
 - ◆ Address DoD environmental requirements
 - ◆ DoD lead required
- Short Written Pre-Proposal
 - ◆ Full proposal requested
 - ◆ Modifications recommended
- Selection
 - ◆ Full proposal

Broad Agency Announcement and Call for Proposals for Federal Organizations Outside DoD

- Call for Technologies
 - ◆ Specific topic areas
- Short Written Pre-Proposal
 - ◆ Full proposal requested
 - ◆ Modifications recommended
- Identify DoD Liaisons
 - ◆ Site selection
 - ◆ Technology transition
- Selection
 - ◆ Full proposal

Selection Criteria

- Relevance (Pass/Fail)
- Appropriate for Demonstration (Pass/Fail)
- Technical Merit
- Cost/Benefit
- Transition Potential
- Cost

Hallmarks of a Competitive Proposal

- Clearly Address a Topic Area
- Well Defined Demonstration Questions
- Provide Significant Benefit
 - ◆ Reduced costs
 - ◆ Improved performance
- Technically Sound
 - ◆ Detailed technology description
 - ◆ Well-defined performance objectives
 - ◆ Detailed technical approach

FY 2021 ESTCP Topics

**Broad Agency Announcement &
Call for Proposals for Federal Organizations Outside DoD**



Innovative Technology Transfer Approaches

- Demonstrate innovative technology transfer approaches for technologies that have been successfully demonstrated under ESTCP or for mature bodies of knowledge that are appropriate for direct transfer that have been developed under the Strategic Environmental Research and Development Program (SERDP)
 - ◆ The target communities of interest are primarily end users
 - ◆ Target communities will likely benefit from technology transfer approaches specific to their mission, business processes, and manner of receiving information
- Proposals must address why the focus technology is appropriate, the barriers to adoption, the key stakeholders, stakeholders' information needs, and why the proposed approach is appropriate to the technology and the audience
- Proposals should comprehensively address all stakeholders that will determine the adoption of the innovative technology
- Proposals may focus on a broad array of SERDP and ESTCP investment areas, or be narrowly targeted

Management of Contaminated Groundwater

- Demonstrate tools, methodologies, or technologies that can reduce the cost of managing DoD's long-term liability associated with contaminated groundwater
 - ◆ Contaminants include per- and polyfluoroalkyl substances (PFAS), chlorinated solvents, energetic compounds, emerging contaminants of interest to DoD, or mixtures of these contaminants
 - ◆ Sites and associated risks where contamination will persist for a significant period of time after an initial remedy is selected
- Areas of interest:
 - ◆ Management tools or technologies to specifically address contaminant source zones in complex geological environments that cause persistent groundwater plumes
 - ◆ Management tools or technologies to address groundwater contaminated with emerging contaminants and common co-contaminants
 - ◆ Assessment of how to better combine existing or new technologies to address complex contaminated sites and make informed decisions on transitions from active remediation to passive technologies
 - ◆ Optimization, assessment, and/or long-term monitoring tools related to remediation of contaminated groundwater
 - ◆ Tools to collect more site data of better quality at lower cost

Chlorinated Solvents Workshop Report - <https://serdp-estcp.org/content/download/47975/456978/file/Chlorinated%20Solvents%20Workshop%20Report%202018.pdf>

PFAS QA/QC Guidelines - <https://serdp-estcp.org/Investigator-Resources/ESTCP-Resources/Demonstration-Plans/Requirements-for-PFAS-Projects>

PFAS Workshop Report - <https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs/2017-Workshop-Report-on-Per-and-Polyfluoroalkyl-Substances>

Long Term Management of Contaminated Aquatic Sediments

- Demonstrate innovative technologies that specifically address the management, risk characterization, remediation, or monitoring of sediments contaminated with polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), heavy metals, or mixtures containing these contaminants
- Areas of interest:
 - ◆ In situ remedial technologies
 - ◆ Demonstrations that facilitate the application and commercialization of passive samplers
 - ◆ Tools or methodologies to evaluate amendment placement and remedy integrity
 - ◆ Monitoring tools to predict the long-term performance of remedies and expected long-term risk reduction
 - ◆ Technologies or tools that advance the regulatory acceptance and implementation of measures of bioavailability into contaminated sediments cleanup activities
 - ◆ Technologies for sustainable dredged material disposal alternatives
- Contaminated marine, estuarine, brackish, and fresh water sediments are of interest
- Proposals addressing sediments contaminated with radionuclides will not be considered

Detection, Classification, and Remediation of Military Munitions in Underwater Environments

- Demonstrate technologies that detect, classify, or remediate military munitions found at underwater sites. Technologies that will facilitate management of underwater munitions sites are also of interest
 - ◆ Wide variety of aquatic environments
 - ◆ Munitions range from small projectiles and mortars to large bombs
 - ◆ Water depths less than 5 meters and up to 35 meters
- Wide Area and/or Detailed Survey Techniques: Systems are needed to cost-effectively survey large areas to identify concentrations of munitions and areas free of munitions
- Development of Standardized Underwater UXO Demonstration Sites: Well-documented test beds are needed to demonstrate the effectiveness of a variety of acoustic, magnetic, EMI, and optical systems that have been developed to detect and classify UXO underwater
- Cost-Effective Recovery and Disposal Methods: Improved methods are needed to cost-effectively and safely recover munitions from the underwater environment
- Management of Underwater Munitions Sites: Improved understanding of munitions transport and fate may help inform site munitions response management decisions

Enhanced Biosecurity and Strategic Mobility with Improved Brown Tree Snake Control

- Demonstrate innovative tools, attractants, methodologies, or technologies that improve the efficiency of Brown Tree Snake (BTS) trapping and removal on the island of Guam and similar locations
 - ◆ Devices optimized for high BTS density scenario where the goal is to rapidly reduce the numbers of snakes in an area
 - ◆ Devices optimized for low BTS density scenario where snakes have been consistently removed and are known to be at low densities, where incipient snake populations are suspected, or where risk of accidental snake arrival is high
 - ◆ Operational analysis of the current BTS methods used on DoD installations on Guam
- Systems that remove snakes that are not actively foraging or are in prey-rich environments will receive strong consideration
- Lethal or nonlethal methods for BTS removal may be proposed
- Proposed systems should minimize nontarget by-catch
- Modifications to dead bait systems currently in use are not being sought

Coastal Total Water Level Model Comparative Assessment

- Assess the currently available empirical, analytical, and numerical models that are used to obtain current and future coastal total water levels
 - ◆ Compare, contrast, and identify strengths and shortcomings of current state of the art modeling
 - ◆ Review of available models' methods
 - ◆ Describe analyzed models' sources of information and cost of use
 - ◆ Characterize models by use cases that would provide DoD an understanding of their ability to provide information regarding foreseeable projected sea level change
- Combine expert analysis with a decision support aid that clearly elucidates the various approaches, models, and tools available impartially so that decision-makers can appropriately select approaches that meet a variety of needs
- Proposals including a decision support aid must also:
 - ◆ Propose how the decision aid will be demonstrated
 - ◆ Identify no less than three and no more than five installations as demonstration sites
 - Both CONUS and OCONUS locations that represent a range of regions, complex environments, and resource constraints
 - ◆ Propose the metrics by which success of the decision aid will be measured

Building Level Energy Storage Systems

- Demonstrate innovative technologies to deploy and operate building level energy storage systems for purposes of improving energy resilience and reducing utility costs
- Technologies of interest are limited to building level energy storage systems that are projected to provide enough cost savings on a stand-alone basis to support a future utility energy services contract (UESC) or energy savings performance contract (ESPC) award
- Project teams are highly encouraged to partner with a UESC or ESPC contract holder that can serve the military installation at which the demonstration project will be performed
- Utilities and ESPC contract holders are encouraged to collaborate and partner with installations as well as technology providers to identify technologies for demonstration
- Demonstration projects should be structured in two phases with a go/no-go decision between each phase
 - ◆ Phase I: Development of a site-specific design, a techno-economic analysis of the system's expected performance, and an approach to calculate guaranteed savings
 - ◆ Phase II: Deployment of the energy storage system and execution of the demonstration for enough time to validate the Phase I projections

Enhanced Energy Resiliency

- Demonstrate technologies and approaches to improve the energy resilience on military installations
- Solutions to improving energy resilience that have broad application across military installations
 - ◆ Leverage existing solar power within the fence line of military installations to enhance energy resilience
 - ◆ Address the interdependencies of energy, water and communications systems in support of ensuring mission execution
 - ◆ Provide cost effective approaches to characterize sub-building critical loads
 - ◆ Provide advanced load management approaches to support mission functions during a grid outage and provide additional revenue when grid tied
 - ◆ Are informed by recent work performed by the Services in developing Installation Energy Plans
 - ◆ Offer innovative business models for financing resilience improvements
- Proposals that include modifying or integrating with existing assets that are owned or operated by non-DoD entities should include the asset owner/operator on the project team
- Proposals that address only unique site-specific needs or seek to demonstrate mature microgrid technologies will not be considered responsive to the intent of this solicitation

Energy Efficiency Technology Demonstrations Integrated with Utility Energy Services Contracts (UESC)

- Demonstration of innovative technologies and approaches to improve the energy and water efficiency of buildings on military installations
- Must be coordinated and integrated with utility energy services contracts (UESCs) in development at military installations
- Demonstrations should be of technologies that would not otherwise be included in the UESC due to a lack of technology cost and performance data or related concerns
- Project leads must be utilities that serve the military installation at which the UESC and demonstration project will be performed
 - ◆ Utilities are encouraged to collaborate and partner with installations as well as technology providers to identify innovative and impactful technologies for demonstration
- Demonstrations with the following characteristics are preferable:
 - ◆ High likelihood of adoption in future UESC projects within one year after conclusion of the demonstration
 - ◆ High calculable energy savings, in addition to cost savings
 - ◆ Potential for high savings-to-investment ratio (SIR) and short simple payback
 - ◆ Minimal additional technology development required for deployment of the technology after the demonstration
 - ◆ Cost sharing

Enhanced Installation Water Resiliency

- Demonstrate innovative technologies and approaches to improve the water resilience on military installations
- Of particular interest are solutions that:
 - ◆ Improve DoD's evaluation of water-related mission assurance risk on military installations
 - ◆ Accurately and cost-effectively identify leaks in water distribution systems
 - ◆ Supplement existing water sources for potable and non-potable applications including but not limited to consideration of improved desalination and water re-use technologies
 - ◆ Improve situational awareness of water consumption and availability of supply
 - ◆ Offer innovative business models for financing resilience improvements
- Proposals that include modifying or integrating with existing assets that are owned or operated by non-DoD entities should include the asset owner/operator on the project team
- Proposals that address only unique site-specific needs will not be considered responsive to the intent of this solicitation

FY 2021 ESTCP Topics

Department of Defense Call for Proposals



Environmental Restoration

- **Monitoring:** Demonstrate technologies for the assessment or long-term monitoring of chemical contamination or biogeochemical indicators in soils, sediments, and water
- **Reduction in Cost to Complete:** Reduce the Cost to Complete for contaminated groundwater or aquatic sediments by improving performance assessment or optimizing treatment
- **Reduce Source Loading of Munitions Constituents:** Reduce source loading of munitions constituents during routine DoD operations and demilitarization activities
- **Stormwater Treatment:** Management and treatment of stormwater runoff from DoD facilities
- **Wastewater Treatment:** Innovative, energy efficient, low maintenance systems for decentralized treatment or recycling of wastewater on fixed installations
- **Risk Assessment:** Demonstrate technologies that are focused on improving the military's ability to assess and predict human and ecological risk from contaminants of concern including PFAS, chlorinated solvents, munitions constituents, PCBs, and PAHs
- **Innovative Technology Transfer Approaches:** DoD investigators are encouraged to submit proposals through the DoD submittal process that respond to this BAA topic area

<https://www.serdp-estcp.org/News-and-Events/Conferences-Workshops/Past-ER-Workshops/Chlorinated-Solvents-Workshop-Report-2018>

<https://www.serdp-estcp.org/Featured-Initiatives/Per-and-Polyfluoroalkyl-Substances-PFASs/2017-Workshop-Report-on-Per-and-Polyfluoroalkyl-Substances>

<https://www.serdp-estcp.org/Program-Areas/Environmental-Restoration/Contaminated-Sediments/SERDP-ESTCP-Workshop-on-Research-and-Development-Needs-for-Long-Term-Management-of-Contaminated-Sediments-2016>

<https://www.serdp-estcp.org/content/download/36213/346223/file/MC%20Workshop%20Report%20November%202015.pdf>

Munitions Response in Underwater Environments

- Development of Standardized Underwater UXO Demonstration Sites
 - ◆ Well-documented test beds are needed to demonstrate the effectiveness of a variety of acoustic, magnetic, EMI, and optical systems that have been developed to classify UXO
- Wide Area and Detailed Surveys
 - ◆ Cost-effectively survey large areas to identify concentrations of munitions and areas free of munitions
 - ◆ Must provide high areal coverage rates but may be successful with only modest probabilities of detection and classification
 - ◆ Proposals addressing novel sensors, platform integration, or large-scale collection of field data at real munitions sites will be considered
- Cost- Effective Recovery and Disposal
 - ◆ Technologies to cost-effectively and safely recover munitions in the underwater environment
 - ◆ Focus on recovery in the shallow water environment and should address explosive safety issues
- Innovative Technology Transfer Approaches
 - ◆ DoD investigators are encouraged to submit proposals through the DoD submittal process that respond to this BAA topic area

Resource Conservation and Resiliency

- Natural Resources
 - ◆ Natural resource efforts should focus on ecological systems, aquatic and marine resources, and terrestrial ecology and species management
- Emissions
 - ◆ Emission efforts should focus on the tools, technologies, and methodologies for the active management of dust, fire, and other emissions from training, testing, and other DoD activities to include both wild fires and prescribed burns
- Resilient Infrastructure
 - ◆ Resiliency demonstrations and validation efforts should focus on tools, technologies, and methodologies for the continuum of infrastructure, both natural and built required by the DoD for the maintenance of capabilities, training, and testing of new systems
- Special Interest Topics
 - ◆ Enhanced Biosecurity and Strategic Mobility with Improved Brown Tree Snake Control
 - ◆ Coastal Total Water Level Model Comparative Assessment
 - ◆ Innovative Technology Transfer Approaches

Weapons Systems and Platforms

- Manufacturing and Maintenance
 - ◆ Alternative materials, processes, and inspection methodologies
 - ◆ Monitoring and control of emissions
- Energetics
 - ◆ Alternative materials and manufacturing processes
 - ◆ Monitoring and control of emissions
 - ◆ Demilitarization of ordnance
- Waste Reduction
 - ◆ Ships and forward operating bases
- Firefighting
 - ◆ Alternative formulations (or associated application technologies) that are fluorine free and can potentially meet performance requirements in MIL-PRF-24385F
- Innovative Technology Transfer Approaches
 - ◆ DoD investigators are encouraged to submit proposals through the DoD submittal process that respond to this BAA topic area

Installation Energy and Water

- Topics for FY 2021 DoD Call for Proposals are identical to those for the BAA and Call for Proposals for Federal Organizations Outside DoD:
 - ◆ Building Level Energy Storage Systems
 - ◆ Enhanced Energy Resiliency
 - ◆ Energy Efficiency Technology Demonstrations Integrated with Utility Energy Service Contracts (UESC)
 - ◆ Enhanced Installation Water Resiliency
- Innovative Technology Transfer Approaches
 - ◆ DoD investigators are encouraged to submit proposals through the DoD submittal process that respond to this BAA topic area

For more information

<https://www.serdp-estcp.org>

