



February 11, 2019

Dr. Eric Davidson  
University of Maryland Center for Environmental Science  
Appalachian Laboratory  
301 Braddock Road  
Frostburg, MD 21532  
(301) 689-7204  
[edavidson@umces.edu](mailto:edavidson@umces.edu)

Dear Dr. Davidson,

On behalf of Old Dominion University, we would like to express interest in joining the Chesapeake Watershed Cooperative Ecosystem Studies Unit (CESU) as a non-federal partner.

We have reviewed the Chesapeake Watershed CESU Cooperative and Joint Venture Agreement (Agreement) and agree to support the Chesapeake Watershed CESU mission and goals and to fulfill the roles and responsibilities of a non-federal partner and agree to accept the overhead rate of 17.5% on activities conducted through the Chesapeake CESU.

Old Dominion University is Virginia's forward focused research university with rigorous academics, an energetic residential community, entrepreneurial research and collaboration, and initiatives that contribute nearly \$2.6 billion annually to Virginia's economy. Located along the Elizabeth River in Norfolk, Virginia, ODU is host to 120 undergraduate programs, over 130 graduate programs and the master's, education specialist, and doctoral levels and a wealth of certificate and professional development programs. Our faculty engages in leading edge interdisciplinary research and regularly collaborates with the CESU's federal agency partners.

In accordance with the Agreement, we agree to conduct, with participating Federal Agencies and the Host University, a program of research, technical assistance, and education related to the Chesapeake Watershed CESU objectives and allow and encourage faculty to participate in the program as appropriate; offer educational and training opportunities to participating Federal Agency employees, as appropriate; and encourage students and faculty to participate in the activities of the Chesapeake Watershed CESU.

As the key research institution located at the mouth of the Chesapeake Bay, Old Dominion would bring a critical new perspective to the Chesapeake Watershed CESU. Our faculty is actively engaged in research aligned with the mission areas of the CESU, and our university-wide priorities and strengths align with the objectives of the Chesapeake Watershed CESU. Specifically, our existing interdisciplinary focus on coastlines and people through our faculty led ODU Resilience Collaborative, the Commonwealth Center for Recurrent Flooding Resiliency and sponsored research focus on understanding the interconnectedness of our changing ecosystem and cultural resources at the mouth of the Chesapeake Bay and translating that research into action. Participation in this CESU will further our commitment to working with the existing federal and non-federal partners already members to achieve the objectives set forth in the Agreement.

Old Dominion Universities designated points of contact are as follows:

**Administrative Contact:**  
Richard Brammer  
Manager of Sponsored programs  
Old Dominion University Research Foundation

4111 Monarch Way Suite 201  
Norfolk, VA 23529  
[rbrammer@odu.edu](mailto:rbrammer@odu.edu)  
(757) 683-7224

Office of Research  
4111 Monarch Way, Suite 203, Norfolk, VA 23508  
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*Old Dominion University is an equal opportunity, affirmative action institution. Minorities, women, veterans and individuals with disabilities are strongly encouraged to apply.*

**Technical Contact:**

Tom Allen  
Professor, Political Science & Geography  
Old Dominion University

713 Batten Arts & Letters  
Norfolk, VA 23529  
[Tallen@odu.edu](mailto:Tallen@odu.edu)  
(757) 683-6059

If you have questions concerning our application to join the Chesapeake Watershed CESU, please feel free to contact us. We look forward to working with you to address ecosystem challenges in the Chesapeake Watershed.

Sincerely,



Morris Foster  
Vice President for Research

## **Old Dominion University Application to Enroll in the Chesapeake Watershed Cooperative Ecosystem Studies Unit**

February 15, 2019

### **Desire to enroll in the Chesapeake Watershed CESU**

Old Dominion University requests to enroll in the Chesapeake Watershed Cooperative Ecosystem Studies Unit (CW CESU) as a new, nonfederal partner. As expressed in the attached letter from Dr. Morris Foster, Vice President for Research, enrollment in the CW CESU aligns with the university-wide strategic focus on coastal adaptation and resilience. Further, Old Dominion's focus on collaboration, service, and interdisciplinary and applied research matches closely with the mission of CW CESU to support stewardship of natural and cultural resources in the region.

### **Description of Old Dominion University**

Old Dominion University is a large, public research university in the City of Norfolk in the South-Eastern Hampton Roads region of the Commonwealth of Virginia. With an enrollment of approximately 24,000 undergraduate and graduate students, Old Dominion University is the largest higher-education institution in the Hampton Roads region. It is classified as a Research University with High Research Activity (Carnegie Basic Classification). In Fiscal Year 2017, the total Research & Development expenditures at Old Dominion University were just below \$68 Million (National Center for Science and Engineering Statistics, Higher Education Research & Development Survey). Old Dominion University contributes nearly \$2.6 billion annually to Virginia's economy and is the second leading producer of STEM-H degrees in Virginia.

### **Mission of Old Dominion University**

Old Dominion University, located in the City of Norfolk in the metropolitan Hampton Roads region of coastal Virginia, is a dynamic public research institution that serves its students and enriches the Commonwealth of Virginia, the nation, and the world through rigorous academic programs, strategic partnerships, and active civic engagement.

### **Old Dominion University student demographics**

Old Dominion University total enrollment for the Fall 2017 semester was 24,375, with 19,540 undergraduate students and 4,835 graduate students. The demographics included 56.0% female, 47.7% White, 27.4 % African American, and 7.9% Hispanic students.

Old Dominion University is recognized by the U.S. Department of Education as a "minority serving institution," a descriptive term that indicates a university enrolls at least 25% of a specific minority group. This 25% threshold is consistent with how the term is defined in *Characteristics of Minority-Serving Institutions and Minority Undergraduates Enrolled in These Institutions*, a report issued by the Institute of Education Sciences at the U.S. Department of Education (<http://nces.ed.gov/pubs2008/2008156.pdf>).

Old Dominion University is one of the nation's top 15 higher education institutions with significantly higher than average African American student graduation rates than comparable institutions (Education Trust, 2017).

Further, approximately 25% of the enrolled student body is military affiliated and Old Dominion regularly receives **recognition** for its service to veterans.

**Confirmation that Old Dominion University supports the CW CESU Cooperative and Joint Venture Agreement**

Old Dominion University confirms that the organization has read the CW CESU Cooperative and Joint Venture Agreement and agrees to support the CW CESU mission and goals and to fulfill the roles and responsibilities of a nonfederal partner as described therein, with the support of the Old Dominion University Research Foundation.

**Old Dominion University Research Foundation**

The **Old Dominion University Research Foundation** is a separate, private, not-for-profit corporation chartered under the laws of the Commonwealth of Virginia that serves as the fiscal and administrative agent for sponsored research and other projects conducted by Old Dominion University. The Old Dominion University Research Foundation has the authority to enter into agreements with external funding agencies on behalf of Old Dominion University. It provides a complete range of administrative and fiscal services in support of funded projects.

The purpose of the Old Dominion University Research Foundation is to promote the educational objectives of Old Dominion University by encouraging, advancing, fostering, and conducting research in engineering, the physical and life sciences, the humanities, education, and all other branches of learning. The Old Dominion University Research Foundation also supports utilizing, publishing, or otherwise making known the results of such investigations and research.

**Primary focus of collaborative CW CESU activities to be supported**

The primary focus of collaborative research, education, and technical assistance activities is on environment and natural and cultural resource stewardship within the Chesapeake Watershed region.

**Primary Old Dominion University programs, departments, or divisions of relevance to federal land management, environmental and research agencies that will likely be engaged in CESU activities.**

Old Dominion University recognizes that all of our departments have faculty with relevant experience in natural and cultural resource stewardship that may be of service to the CW CESU from departments as wide-ranging as **Communication & Theatre Arts** to our **School of Public Service**. For the purposes of this application only departments and faculty with a primary relevant focus are included, however, many more departments, programs and individual faculty members are available for collaborative research.

*Primary Programs and Centers:*

The **Chesapeake Bay Program** collects data to support the objectives of the Virginia Department of Environmental Quality to restore the environmental health of the Chesapeake Bay. The program provides information necessary to measure effectiveness of reducing nutrient input to the Bay and determines progress towards achievement of living resources and water quality habitat goals.

The [Commonwealth Center for Recurrent Flooding Resiliency](#) engages the expertise, resources, and intellectual vibrancy of William & Mary and Old Dominion University in support of building resilience to rising waters. The Center serves, advises, and supports Virginia by conducting interdisciplinary studies and providing training, technical and non-technical services, and policy guidance in the area of recurrent flooding resilience to the Commonwealth and its local governments, state agencies, industries, and citizens.

The [Old Dominion University Resilience Collaborative](#) is a consortium of leading scholars actively engaged in research, education, and outreach on critical issues for resilience at the community, regional, national, and global levels. It creates and disseminates knowledge, develops and conducts innovative projects, and supports decision making about resilience issues. Key areas of focus include climate change and sea level rise, adaptation, cybersecurity, health, and community resilience.

The [Institute for Coastal Adaptation & Resilience](#) is the newly launched umbrella organization for adaptation and resilience research at Old Dominion University. It leverages the university's decades long investment in collaborative interdisciplinary research focused on adaptation and resilience, expertise in science and practice, and ODU faculty's disciplinary depth and interdisciplinary breadth in leading research, education, and community partnerships to develop practical solutions to challenges faced by coastal communities.

The [Center for Coastal Physical Oceanography](#) promotes research on the physical oceanography of the coastal ocean and related oceanographic processes because of both short-term anthropogenic impacts due to the proximity to large human populations as well as changes due to long-term variations in the Earth's climate.

The [Center for Quantitative Fisheries Ecology](#) is involved in a variety of research projects related to fisheries management, studying the population dynamics of many marine species that are important to fisheries and conservation.

The [Virginia Modeling, Analysis, and Simulation Center](#) is a multidisciplinary computational modeling and simulation research center exploring new ways to employ modeling and simulation to solve real world problems through engaging in scholarly research, promoting economic development, and supporting modeling and simulation education.

The Social Sciences Research Center is a fully equipped social science research center with staff expertise in various form

The [Mitigation and Adaptation Research Institute](#) works with a wide range of community stakeholders, including government, military, private sector, and citizens within and outside the region to co-create practice-relevant knowledge that can enable them not only to reduce the negative aspects of climate change and sea-level rise, but also to make positive use of opportunities in the coming changes.

*Primary Colleges and Departments:*

### **College of Sciences**

- **Biological Sciences**
- **Chemistry & Biochemistry**
- **Ocean, Earth & Atmospheric Sciences**

**Batten College of Engineering & Technology**

- **Civil & Environmental Engineering**
- **Engineering Technology**

**College of Arts & Letters**

- **Political Science & Geography**

**Darden College of Education & Professional Studies**

- **Department of Human Movement Sciences – Park, Recreation & Tourism Studies**

*Primary Old Dominion University faculty with expertise in disciplines and subject areas of relevance*

<b>Biological Sciences</b>	<b>Position</b>	<b>Discipline</b>	<b>Subject Areas</b>
<b>Barshis, Daniel</b>	Assistant Professor	Marine Ecology	Species that naturally occur at edges of physiological tolerance limits; Stress tolerance in corals; Climate change
<b>Bartol, Ian</b>	Professor	Marine Ecology	Marine biomechanics; Marine physiological ecology
<b>Butler, Mark</b>	Professor	Marine Ecology	Spiny lobster ecology; Tropical marine ecology; Quantitative ecology
<b>Carpenter, Kent</b>	Professor	Morphology	Ichthyology, morphological and molecular systematics; Biogeography; Marine conservation
<b>Dauer, Daniel</b>	Emeritus	Marine Ecology	Marine ecology; Invertebrate zoology
<b>Gaff, Holly</b>	Associate Professor	Infectious Disease	Modeling of infectious diseases; Tick-borne diseases; nosocomial infections; Ecology of infectious diseases
<b>Gauthier, David</b>	Associate Professor	Aquatic Disease	Diseases of aquatic organisms; Mycobacteriosis in finfishes
<b>Horth, Lisa</b>	Associate Professor	Ecology	Molecular variation in color polymorphisms; Persistence of rarity; Population structure
<b>Musselman, Lytton</b>	Professor	Botany	Parasitic plants of semiarid tropics; Vascular plant systematics; Taxonomy and evolution of the fern ally <i>Isoetes</i>
<b>Wallace, Lisa</b>	Professor	Botany	Evolutionary biology; Biogeography
<b>Waller, Deborah</b>	Associate Professor	Entomology	Termite ecology
<b>Walters, Eric</b>	Associate Professor	Ecology	Avian ecology; Community ecology; Behavioral ecology; Conservation biology; Quantitative ecology

<b>Chemistry &amp; Biochemistry</b>	<b>Position</b>	<b>Discipline</b>	<b>Subject Areas</b>
<b>Bernath, Peter</b>	Professor	Molecular Spectroscopy	Molecular astronomy; Atmospheric sciences; Laser and Fourier transform spectroscopy

<b>Donat, John</b>	Associate Professor	Environment	Water quality of the Chesapeake Bay; Trace metals in estuarine, coastal, and oceanic waters; Metal-phytoplankton interactions; Organic metal chelators in seawater
<b>Hatcher, Patrick</b>	Professor	Environment	Plant-derived biopolymers in soils, peats, marine sediments, and oceanic waters; Interaction of organic contaminants with natural organic matter; Conversion of algae biomass to biodiesel fuel
<b>Lee, James</b>	Associate Professor	Biochemistry	Genetic transformation of photosynthetic organisms for biofuels production; Biomass pyrolysis for biofuels and biochar production
<b>Mao, Jingdong</b>	Associate Professor	Environment	Biogeochemistry; Solid-state NMR spectroscopy
<b>Mopper, Kenneth</b>	Professor	Environment	Composition of ocean organic matter; Algae and bacteria production of surface active polysaccharides and their role in particle formation in natural waters

<b>Ocean, Earth &amp; Atmospheric Sciences</b>	<b>Position</b>	<b>Discipline</b>	<b>Subject Areas</b>
<b>Atkinson, Larry</b>	Emeritus	Nutrient dynamics	Nutrient supplies and hydrographic variability
<b>Bohdansky, Alexander</b>	Associate Professor	Nutrient dynamics	Ecophysiology of zooplankton; Trophic interactions; Heterogeneity in the (feeding) environment; Assimilation of organic nutrients; Bioenergetics
<b>Cutter, Gregory</b>	Professor	Trace Elements	Trace elements in natural waters and sediments; Air-sea transport and exchange of gases and trace elements; Paleoceanographic tracers
<b>Covi, Michelle</b>	Assistant Professor of Practice	Climate Adaptation	Climate change and sea level rise risk perception, communication, and public participation in regional decision making
<b>Dobbs, Fred</b>	Professor	Biogeochemistry	Marine microbial ecology and biogeochemistry, particularly of benthic systems
<b>Ezer, Tal</b>	Professor	Oceanography	Ocean mixing processes; Data assimilation and numerical ocean modeling from coastal circulation to basin-scale climate problems
<b>Harvey, Rodger</b>	Professor	Biogeochemistry	Organic compounds in aquatic environments and linkages with climate; Natural product biochemistry
<b>Hale, Rip</b>	Assistant Professor	Oceanography and Geology	Sediment dynamics and coastal processes
<b>Hofmann, Eileen</b>	Professor	Oceanography	Physical-biological interactions and descriptive physical oceanography
<b>Jones, Cynthia</b>	Professor	Fisheries	Fisheries ecology

<b>Klinck, John</b>	Professor	Oceanography	Modeling biological and physical processes in the ocean
<b>Mulholland, Margaret</b>	Professor	Nutrient dynamics	Nitrogen cycling; Phytoplankton dynamics; Microbial ecology; Dissolved organic material cycling
<b>Plag, Hans-Peter</b>	Professor	Geophysics	Sustainability; Global and climate change; Local to global sea level changes; Earth system dynamics
<b>Sedwick, Peter</b>	Professor	Trace Elements	Marine biogeochemistry of trace metals and their role in regulating marine primary production; Atmospheric transport and deposition of trace metals to the ocean; Paleoenvironmental records in marine sediments and ice cores
<b>Whittecar, Richard</b>	Associate Professor	Hydrology	Geomorphology and hydrology of estuarine, fluvial, and palustrine wetlands
<b>Zimmerman, Richard</b>	Professor	Nutrient dynamics	Ecological physiology of marine autotrophs; Metabolic regulation of carbon and nutrient dynamics in marine ecosystems; Radioactive transfer and remote sensing of optically shallow waters; Ecosystem productivity

<b>Civil &amp; Environmental Engineering</b>	<b>Position</b>	<b>Discipline</b>	<b>Subject Areas</b>
<b>Chae, Yunbyeong</b>	Assistant Professor	Structural Engineering	Earthquake engineering
<b>Erten-Unal, Mujde</b>	Associate Professor	Civil Engineering	Environmental engineering
<b>Ishibashi, Isao</b>	Professor	Civil Engineering	Geotechnical/earthquake engineering
<b>Kumar, Sandeep</b>	Associate Professor	Environmental Engineering	Environmental and chemical engineering; Biofuels; Biomass; Supercritical fluids
<b>Ma, Gangfeng</b>	Assistant Professor	Civil Engineering	Estuarine and coastal hydrodynamics; Coastal hazard assessment; Sediment transport dynamics; Wetland hydrodynamics
<b>Schafran, Gary</b>	Professor	Civil Engineering	Water treatment; Aquatic chemistry; Physicochemical treatment processes; Natural systems water quality; Lake oxygenation; Reservoir management
<b>Tahvildari, Navid</b>	Assistant Professor	Civil Engineering	Modeling coastal and ocean hydrodynamics; Impact of climate change and sea-level rise on coastal areas
<b>Wang, Xixi</b>	Associate Professor	Civil Engineering	Water resources; Hydrology-soil-vegetation interactions; Watershed hydrology
<b>Yoon, Jaewan</b>	Associate Professor	Civil Engineering	Water quality modeling and management



Engineering Technology	Position	Discipline	Subject Areas
<b>Considine, Carol</b>	Associate, Professor	Engineering, Technology	Adaptation, flooding and the built environment, green infrastructure

Political Science & Geography	Position	Discipline	Subject Areas
<b>Allen, Michael</b>	Assistant Professor	Geography	Bioclimatology, Climate variability, climatology
<b>Allen, Thomas</b>	Professor	Geography	GIS for coastal environments, hazards, and resource sustainability
<b>Liu, Hua</b>	Associate Professor	Geography	Remote sensing, GIS, Urban environmental changes

Park, Recreation, and Tourism Studies	Position	Discipline	Subject Areas
<b>Usher, Lindsay</b>	Assistant, Professor	Tourism	Tourism impacts on communities, sustainable tourism
<b>Zajchowski, Christopher</b>	Assistant, Professor	Outdoor recreation	Outdoor recreation and education, human dimensions of natural resource management

*Past relevant assistance supported through grants and contracts*

Listed below are relevant research, technical assistance, and educational projects at Old Dominion University supported through federal, state, and industry sponsors from July 2016 through January 2019, totaling just over \$8 Million.

Agency	Project	Award	Department	Investigator
U.S. Fish and Wildlife Services	Building Conservation Leaders for the Future	\$50,000	Ocean, Earth & Atmospheric Sciences	Plag, Hans-Peter
National Science Foundation	The Chemistry of Lignin's Photochemical Transformation in the Environment	\$330,000	Chemistry & Biochemistry	Hatcher, Patrick
National Oceanic and Atmospheric Administration	Direct Ageing Technique for Gulf and South Atlantic Spiny Lobster for Age-Based Stock Assessment	\$104,689	Biological Sciences	Butler, Mark
National Science Foundation	Sustainability in Chesapeake Bay Shorescapes	\$115,901	Ocean, Earth & Atmospheric Sciences	Covi, Michelle
U.S. Geological Survey	Investigation of Oil Shales by Advanced Solid-State NMR	\$20,000	Chemistry & Biochemistry	Mao, Jingdong
National Aeronautics & Space Administration	The Role of Decadal Climate Variability in Global and Regional Sea Level Change	\$41,566	Ocean, Earth & Atmospheric Sciences	Hamlington, Benjamin

Agency	Project	Award	Department	Investigator
National Aeronautics & Space Administration	Implementing and Monitoring the Sustainable Development Goals in the Caribbean	\$50,000	Ocean, Earth & Atmospheric Sciences	Plag, Hans-Peter
U.S. Fish and Wildlife Services	Marsh Habitat Classification Synthesis for Southern Coastal Georgia and Northern Florida	\$38,000	Political Science & Geography	Allen, Thomas
U.S. Environmental Protection Agency	Low-Cost Household Biochar Water Filter for Lead Removal	\$14,999	Civil & Environmental Engineering	Kumar, Sandeep
DoD Strategic Environmental Research and Development Program	Next-Generation Rainfall IDF Curves for the Virginian Drainage Area of the Chesapeake Bay	\$170,564	Civil & Environmental Engineering	Wang, Xixi
National Oceanic and Atmospheric Administration	ECOHAB 2018: Toward a Predictive Understanding of Cochlodinium and Alexandrium Blooms in Lower Chesapeake Bay	\$835,452	Ocean, Earth & Atmospheric Sciences	Mulholland, Margaret
National Oceanic and Atmospheric Administration	Aging Caribbean Spiny Lobster for Assessment	\$74,208	Biological Sciences	Butler, Mark
Hampton Roads Sanitation District Commission	Lower James River Estuary Project 2017: Relationship between Surface Chlorophyll, Dinoflagellate, and Depth-integrated Chlorophyll Concentrations	\$198,120	Ocean, Earth & Atmospheric Sciences	Mulholland, Margaret
Hampton Roads Sanitation District Commission	Lower James River Estuary Project 2018	\$149,886	Ocean, Earth & Atmospheric Sciences	Mulholland, Margaret
Hampton Roads Sanitation District Commission	Lower James River Estuary Project 2019	\$50,103	Ocean, Earth & Atmospheric Sciences	Mulholland, Margaret
Massachusetts Division of Marine Fisheries	Evaluation of Natal Origin and Migratory Pathways	\$14,502	Chemistry & Biochemistry	Woznak, Andrew
Virginia Department of Agriculture	Evaluating Viral Disease in Honey and Mason Bees on Small Strawberry Farms in Virginia	\$94,358	Biological Sciences	Horth, Lisa
Florida Fish and Wildlife Conservation Commission	Can Herbivorous Grabs Facilitate Coral Reef Restoration in the Florida Keys?	\$116,032	Biological Sciences	Butler, Mark

<b>Agency</b>	<b>Project</b>	<b>Award</b>	<b>Department</b>	<b>Investigator</b>
Virginia Marine Resources Commission	FY 2017 Finfish Ageing for Virginia Catches and Stock Assessment	\$285,657	Ocean, Earth & Atmospheric Sciences	Jones, Cynthia
Virginia Marine Resources Commission	FY 2018 Finfish Ageing for Virginia Catches and Stock Assessment	\$291,836	Ocean, Earth & Atmospheric Sciences	Jones, Cynthia
Virginia Marine Resources Commission	FY 2019 Finfish Ageing for Virginia Catches and Stock Assessment	\$291,836	Ocean, Earth & Atmospheric Sciences	Jones, Cynthia
Virginia Institute of Marine Science	Predicted Impacts of Climate Change on the Success of Alternative Management Actions in the Chesapeake Bay	\$50,000	Center for Coastal Physical Oceanography	Hofmann, Eileen
National Oceanic and Atmospheric Administration	Improving Ecological and Economic Sustainability of Marine Fisheries Using Remotely-sensed Oceanographic Data	\$31,634	Biological Sciences	Maxwell, Sarah
Virginia Institute of Marine Science	Quantifying Wave Dissipation Effects of Living Shorelines	\$49,289	Civil & Environmental Engineering	Tahvildari, Navid
Virginia Department of Environmental Quality	2017 Chesapeake Bay Monitoring Program	\$1,129,023	Biological Sciences	Dauer, Daniel
Virginia Department of Environmental Quality	2018 Chesapeake Bay Monitoring Program	\$1,125,410	Biological Sciences	Dauer, Daniel
Virginia Department of Environmental Quality	2019 Chesapeake Bay Monitoring Program	\$1,135,335	Biological Sciences	Dauer, Daniel
Gulf of Mexico Research Initiative	A Comprehensive Petrochemical Vulnerability Index for Improved Decision-Making and Marine Biodiversity Risk Assessment in the Gulf of Mexico Large Marine Ecosystem	\$133,600	Biological Sciences	Carpenter, Kent
Virginia Institute of Marine Science	Can Seagrass Beds Mitigate Ocean Acidification Thresholds for Eastern Oysters in the Chesapeake Bay?	\$106,989	Ocean, Earth & Atmospheric Sciences	Zimmerman, Richard
Coastal Virginia Wildlife Observatory	Consequences of Migratory Bird Stopover Habitat Selection	\$13,000	Biological Sciences	Walters, Eric

Agency	Project	Award	Department	Investigator
Wildlife Management Institute	Marsh Habitat Mapping and Classification Synthesis for the Florida Peninsula	\$65,950	Political Science & Geography	Allen, Thomas
Virginia Geographic Alliance	The Chesapeake Bay: Interconnected System	\$10,000	Political Science & Geography	Allen, Michael
Science Systems and Applications, Inc.	Geospatial Analysis of Urban-Rural Flooding Impacts across Virginia and North Carolina : NASA Coastal Hazards Mid-Atlantic Demonstration Study	\$30,000	Political Science & Geography	Allen, Thomas
World Conservation Union	Global Marine Species Assessment	\$462,738	Biological Sciences	Carpenter, Kent
Asia-Pacific Network for Global Change Research	Achieving Transparency in Natural Resource Management by Quantitatively Bridging Social and Natural Science Uncertainties	\$25,000	Center for Coastal Physical Oceanography	Hofmann, Eileen

### **Current relevant agreements and partnerships**

- Established in 1972, the **Chesapeake Research Consortium** (CRC) is a non-profit association of seven research and education institutions around the Chesapeake Bay region. As a member of the CRC with a long history of research within the Chesapeake Bay and its watershed, Old Dominion contributes to the CRC mission of using science to inform management and training the work force for science-based management.
- Located in Washington, D.C., the **Consortium for Ocean Leadership** is the only community-based organization to ensure sound science underpins ocean policy and decision-making at the federal level. Old Dominion University is a voting member of this ocean science and technology advocacy group.
- **Mid-Atlantic Regional Association Coastal Ocean Observing System** provides the necessary ocean observing, data management, and forecasting capacity to systematically address prioritized themes in the Mid-Atlantic Bight, which extends from Cape Cod, MA to Cape Hatteras, NC for the U.S. Integrated Ocean Observing System.
- **Virginia Sea Grant Consortium** advances the ecological, economic, social sustainability and resilience of Virginia’s coastal and ocean ecosystems as well as the communities that depend on them. Old Dominion is one of seven Virginia Sea Grant partner institutions that is active in its regular operations including strategic planning, policy development and recruitment.

**Willingness to accept a limited overhead rate**

Old Dominion University is willing to accept a limited overhead rate of 17.5% and cost items to which the rate is applicable for activities conducted through the CW CESU, in accordance with the CW CESU Cooperative and Joint Venture\_Agreement.

**Technical representative**

Thomas R. Allen  
Professor of Geography  
Department of Political Science & Geography  
Old Dominion University  
Norfolk, VA 23529  
Tel: 757-683-6959  
E-mail: [tallen@odu.edu](mailto:tallen@odu.edu)

**Administrative representative**

Richard Brammer  
Manager of Sponsored Programs  
Old Dominion University Research Foundation  
P.O. Box 6369  
Norfolk, VA 23508-0369  
Tel: 757-683-7224  
E-mail: [rbrammer@odu.edu](mailto:rbrammer@odu.edu)

**Agreement to relay agency-specific needs and funding opportunities**

Old Dominion University, through its designated Technical point of contact, Dr. Thomas Allen, and through the Office of Research will relay agency-specific research, technical assistance, and educational needs and associated funding opportunities to other institutional/organizational members.

**Signature or Endorsement from Appropriate Official, with Authority to commit institutional resources in a binding multi-year federal cooperative joint venture agreement**

Dr. Morris Foster, Vice President of Research for Old Dominion University has submitted a cover letter detailing Old Dominion University's commitment to this federal cooperative joint venture agreement and has the authority to do so on behalf of the University.

**Letter(s) of Support from one or more CESU federal agency partners sponsoring the new partner's application**

Letters of support are included and attached to this application from Kevin R. Du Bois, the regional DoD Chesapeake Watershed Representative, Adrienne Antoine, Program Manager, Coastal Oceans and Climate Applications Program, and from David Hallac, Superintendent, National Parks of Eastern North Carolina.

**Subject: ODU CESU Application**

From: Du Bois, Kevin R CIV NAVFAC MIDLANT, EV - To: esteinhi@odu.edu, Filer, Danny - Cc: - Date: February 13, 2019 at 11:29 AM, Attachments: smime.p7s

Dear Mr. Filer,

As the regional DoD Chesapeake Watershed Representative, I am writing in support of the application of Old Dominion University (ODU) to join the Chesapeake Watershed Cooperative Ecosystem Studies Unit (CESU). Professionally, I have partnered with a diverse array of ODU staff and student clubs to build wetlands on and off campus, to attack invasive species in natural areas, to participate in the Hampton Roads (climate change/sea level rise) Adaptation Forum, and to host and develop cutting edge computer modeling simulation workshops as a collaborative teaching tool to develop understanding of the effects of climate change on the management of natural resources.

In becoming a member of the Chesapeake Watershed CESU, ODU will bring expertise in a number of areas of interest to the CESU including communicating coastal impacts, coastal and nearshore processes, understanding human and ecosystem health, social marketing research and more. ODU has demonstrated expertise in partnering with agencies such as ours, other academic institutions, and with the community and would bring a wealth of personnel and resources to the CESU network for the benefit of its users.

Thank you for your kind consideration of their application,

Kevin R. Du Bois, PWS, PWD, CFM  
Chesapeake Bay Program Coordinator  
NAVFAC MIDLANT, N45R  
1510 Gilbert Street  
Bldg N26, Room 3300  
Norfolk VA 23511  
757-341-0424  
Email: kevin.dubois@navy.mil



**UNITED STATES DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration  
Office of Oceanic and Atmospheric Research  
Climate Program Office  
1315 East West Highway, SSMC 3, 12<sup>th</sup> Floor, R/CP  
Silver Spring, MD 20910

February 15, 2019

Dr. W. Mark Ford  
USGS Virginia Cooperative Fish and Wildlife Research Unit  
Department of Fish and Wildlife Conservation  
106 Cheatham Hall, 310 West Campus Drive  
Virginia Polytechnic and State University  
Blacksburg, Virginia 24061

Dear Dr. Ford:

I am writing to endorse the application of Old Dominion University (ODU) to join the **Chesapeake Watershed Cooperative Ecosystem Studies Unit (CHWA CESU)**. ODU would be a valuable member in the cooperative to facilitate collaborative research, technical advice, education, and outreach in support of integrated coastal ecosystem management.

Dr. Thomas Allen at Old Dominion University has worked on NOAA funded projects such as the recent Coastal and Ocean Climate Applications project in Morehead City, North Carolina, and Charleston, South Carolina. This project linked sea level and climate changes to potential impacts and resilience of water infrastructure and public health. In addition to providing training and modeling information, the collaborations produced a guidebook for other coastal communities and are bringing NOAA and other local-regional data together.

Therefore, I am confident that ODU can be a technically valuable and reliable partner with other federal agencies.

Sincerely,

Adrienne Antoine

Program Manager, Coastal Ocean and Climate Applications Program  
NOAA Climate Program Office





UNITED STATES  
DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE  
OUTER BANKS GROUP

Fort Raleigh National Historic Site  
Wright Brother National Memorial

Moore's Creek National Battlefield  
Cape Lookout National Seashore



Cape Hatteras National Seashore  
1401 National Park Drive  
Manteo, NC 27954  
252-473-2111

February 7, 2019

Dr. W. Mark Ford  
USGS Virginia Cooperative Fish and Wildlife Research Unit  
Department of Fish and Wildlife Conservation  
106 Cheatham Hall, 310 West Campus Drive  
Virginia Polytechnic and State University  
Blacksburg, Virginia 24061

Dear Dr. Ford:

On behalf of the National Park Service Cape Hatteras National Seashore (NPS CAHA), we would like to endorse the application of Old Dominion University (ODU) to join the **Chesapeake Watershed Cooperative Ecosystem Studies Unit (CHWA CESU)**. Since the CESU fosters stewardship of the watershed and its natural and cultural resources, it is fitting that ODU join the cooperative and apply its expertise in collaborative research, technical assistance, and education that support integrated ecosystem management.

Dr. Tom Allen at Old Dominion University has provided NPS CAHA research and assimilated data on the state of shoreline change and sea level rise impacts on its valuable cultural heritage. Their study culminating in 2016 provided a long-term analysis updated assessment of the risk of shoreline erosion along the oceanfront and inundation potential under current sea level rise projections at our most vulnerable monuments and structures on Hatteras and Ocracoke Islands.

The NPS CAHA is confident that ODU can be a reliable and technically competent partner with other federal agencies seeking collaboration, technical assistance, or educational outreach. ODU's admission to the CESU would thus be of benefit to ours and other potential NPS units.

Sincerely,

David Hallac  
Superintendent  
National Parks of Eastern North Carolina