GEORGETOWN UNIVERSITY

December 20, 2021

Matt Fitzpatrick
Director of the Chesapeake Watershed CESU Research Network
University of Maryland Center for Environmental Science
Appalachian Laboratory
301 Braddock Road
Frostburg, MD 21532

Dear Dr. Fitzpatrick:

Georgetown University is interested in joining the Chesapeake Watershed CESU Research Network.

CONFIRMATION

Mrs. Rocio Marino-Crumley, Manager, Grants and Contracts, confirms that Georgetown has read the CESU agreement and agrees to support the CESU mission and goals and fulfill the roles and responsibilities of a nonfederal partner, as described in the CESU agreement Joint Venture Agreement.

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Georgetown is a Catholic and Jesuit, student-centered research university. Established in 1789 in the spirit of the new republic, Georgetown was founded on the principle that serious and sustained discourse among people of different faiths, cultures, and beliefs promotes intellectual, ethical and spiritual understanding. Georgetown embodies this principle in the diversity of its students, faculty and staff, its commitment to justice and the common good, its intellectual openness and its international character.

An academic community dedicated to creating and communicating knowledge, Georgetown provides excellent undergraduate, graduate and professional education in the Jesuit tradition for the glory of God and the well-being of humankind. Georgetown educates women and men

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to be reflective lifelong learners, to be responsible and active participants in civic life and to live generously in service to others.

The collaborative activities to be supported through the CHWA CESU will be around various aspects of environment and sustainability research, education, and capacity building at Georgetown University and its partners.

RELEVANT PROGRAMS AND DEPARTMENTS

The Earth Commons: Georgetown University's Institute for Environment and Sustainability is the primary institutional division of relevance to federal land management, environmental, and research agencies that will likely be engaged in CHWA CESU activities. Its mission is building, supporting, and infusing environmental and sustainability research, education and action throughout the Georgetown University community so that current and future generations are better prepared to care for our common home.

EXAMPLES of RELEVANT FACULTY

Below is the list of and brief description of some of the faculty with expertise in disciplines and subject areas of relevance to federal land management, environmental, and research agencies.

Matthew Hamilton | Professor, Department of Biology

While much of Professor Matthew Hamilton's research is not exclusively based in the Chesapeake watershed, several projects use Chesapeake Bay populations or are working on questions relevant to the Chesapeake.

The Hamilton lab developed novel striped bass genetic markers and employed them to estimate genetic differentiation among Chesapeake tributaries. Most recently, Hamilton has been working on a genomics-scale project using archived and contemporary samples to assemble a longitudinal (~1970 to present) genetic polymorphism data set for striped bass, the emblematic anadromous fish of Chesapeake Bay (which also spawn in several estuaries along the mid-Atlantic). The project would address a series of basic science questions such as, are

increases in sea surface temperature and sea level altering population differentiation and gene flow patterns based on historic patterns of genetic variation? Are there genes contributing to local adaptation in the different populations and have those changed over time? What is the genetic effective population size and has it changed over time?

Another project is a collaboration with **Associate Professor Gina Wimp** and involves ecological genetics and focuses on the salt marsh plants Spartina patens and Spartina alterniflora, both of which act as ecological foundation species that form the physical substrate and food web bases of mid-Atlantic salt marshes, including Chesapeake Bay marshes. This research examines the role of genetic variation in shaping ecological interactions like competition between Spartina patens and Spartina alterniflora. Another area of interest is spatial patterns of genetic variation in plants how it is impacted by changes to habitats or by revegetation programs, something that accompanies sea level rise and marsh destruction or modification.

Hamilton also is a member of the Mid-Atlantic Fishery Management Council, Communication and Outreach advisory panel (07/2021-06/2024).

Janet Mann I Professor, Department of Biology

To help inform MMPA management of western mid-Atlantic bottlenose dolphin stocks, Professor Janet Mann has been studying bottlenose dolphins in the Potomac River and middle Chesapeake Bay since 2015. Over 2000 unique individuals have been identified in the area between April and October with a peak in July and August. Critically, the 1987-1988 and 2013-2015 unusual mortality events are thought to have started in Virginia coastal and estuarine (Chesapeake Bay) waters, both of which are estimated to have decreased coastal stock sizes to half their former size. Given the area's inferred relevance to disease outbreaks, understanding dolphin use of the Chesapeake Bay is required to ensure that mid-Atlantic bottlenose dolphins achieve or maintain optimum sustainable population levels and a functioning ecological role. Mann's most recent proposed research is to further collect and assess systematic data on dolphins in this area to help achieve MMPA goals by determining: 1) stock assignment and use, 2) local level threats (including fisheries and boat interactions, pathogens, and noise pollution) and, 3) stock overlap in the area and its impact on disease transmission along the greater mid-Atlantic region.

Peter Marra I Director, The Earth Commons: Georgetown University's Institute for Environment and Sustainability I Laudato Si' Professor of Biology and the Environment I Professor, McCourt School of Public Policy

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Professor Marra's research in conservation science has four broad themes, including migration, climate change, disease and urban ecology. His primary interests lie in understanding the factors that control population persistence and dynamics so Pete's research examines the roles of climate, habitat, food and pathogens as well as other direct sources of mortality on the individual condition of both individual migratory and resident birds and their populations. His research on carry-over effects, seasonal interactions and migratory connectivity over the past 20 years has helped stimulate a movement in the full life-cycle biology of migratory animals. He co-founded The Migratory Connectivity Project (http://www.migratoryconnectivityproject.org/) to further advance the conservation and understanding of animals throughout their full life cycle by promoting the science of migratory connectivity.

Mary Beth Martin I Professor, Department of Oncology

Professor Mary Beth Martin has begun researching metal contamination in the Washington, DC, area. Her team is collecting toenail samples for metal analysis to see if there are differences in metal content among women living in surrounding counties and different DC wards, especially in areas near the Navy Yard and Anacostia River.

Leslie Ries I Associate Professor, Department of Biology

Professor Leslie Ries studies how climate and land use change impact butterfly communities. While Ries does not work specifically in the Chesapeake watershed, her research is done at a continental scale, and most of it focuses on the eastern portion of North America.

Gina Wimp I Associate Professor, Department of Biology

Professor Gina Wimp's NSF-funded research examines the evolutionary forces that shape biodiversity and the human factors that erode biodiversity and ecosystem services in salt marsh ecosystems. She has worked in salt marsh ecosystems from North Carolina to Maine (although not the Chesapeake specifically), but her research focuses primarily on New Jersey salt marshes. She has found than human nutrient inputs alter salt marsh food webs, increase

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decomposition, and reduce salt marsh carbon storage. Moreover, when salt marshes are exposed to nutrient inputs for multiple years, it can lead to salt marsh dieback and the loss of ecosystem services. She has also found that an increase in sea level rise and subsequent habitat fragmentation in the high marsh foundation plant species (*Spartina patens*) negatively impacts the associated food web, increases decomposition, and decreases carbon storage in the soil. Because S. patens stores more carbon than its congener (*Spartina alterniflora*), this could lead to an overall reduction in carbon storage in salt marsh ecosystems which currently store 2% of soil carbon on a global scale.

Services provided by salt marshes per unit area are greater than any other ecosystem; however, these ecosystems are now threatened by sea level rise. To build salt marsh resilience, managers are using thin layer deposition, which pumps dredged sediment onto salt marshes. Wimp and her collaborators (Professor Ken Able, Rutgers Marine Laboratory; Professor Shannon Murphy, University of Denver), in research funded by a NOAA, New Jersey Sea Grant, have been examining the impacts of thin layer deposition on salt marsh productivity, elevation, soil properties, ecosystem processes, tidal pool and *Spartina* food webs. They have found that while *Spartina* grasses can eventually recover from dredge deposits, applications of sand completely alter the microbial community and lead to *Spartina* dieback. As *Spartina* has recovered in dredge plots, so has the arthropod community; thus, this may be a viable technique for increasing marsh resilience to sea level rise.

STUDENT DEMOGRAPHICS

We are not a minority-serving institution as defined by the US Department of Education. Student demographics are below.

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Institutional Enrollment - Men and Women

Provide numbers of students for each of the following categories as of the institution's official fall reporting date or as of **October 15, 2020.**

- Note: Report students formerly designated as 'first professional' in the graduate cells. For information on reporting study abroad students please see this link.

	FULL-TIME		PART-TIME	
	Men	**Women**	**Men**	**Women**
Undergraduates				
Degree-seeking, first-time freshmen	686	864	19	15
Other first-year, degree-seeking	54	93	5	11
All other degree-seeking	2,141	2,771	219	240
Total degree-seeking	**2,881**	**3,728**	**243**	**266**
All other undergraduates enrolled in credit courses	0	1	118	120
Total undergraduates	**2,881**	**3,729**	**361**	**386**
Graduate				
Degree-seeking, first-time	855	1173	205	222
All other degree-seeking	2622	2752	1822	2175
All other graduates enrolled in credit courses	5	5	100	78
Total graduate	**3482**	**3930**	**2127**	**2475**
Total all students	**6,363**	**7,659**	**2,488**	**2,861**

Total all undergraduates	7,357
Total all graduate	12014
GRAND TOTAL ALL STUDENTS	**19,371**

Enrollment by Racial/Ethnic Category.

Provide numbers of undergraduate students for each of the following categories as of the institution's official fall reporting date or as of **October 15, 2020**.

- Include international students only in the category "Nonresident aliens."
- Complete the "Total Undergraduates" column only if you cannot provide data for the first two columns.
- Report as your institution reports to IPEDS: persons who are Hispanic should be reported only on the Hispanic line, not under any race, and persons who are non-Hispanic multi-racial should be reported only under "Two or more races."

	Degree-Seeking First-Time First Year	**Degree-Seeking Undergraduates** (include first-time first-year)	**Total Undergraduates** (both degree- and non-degree-seeking)
Nonresident aliens	127	1,008	1,074
Hispanic/Latino	117	677	677
Black or African American, non-Hispanic	90	471	484
White, non-Hispanic	842	3,511	3,548
American Indian or Alaska Native, non-Hispanic	2	6	6
Asian, non-Hispanic	244	863	863
Native Hawaiian or other Pacific Islander, non-Hispanic	2	5	5
Two or more races, non-Hispanic	111	387	388
Race and/or ethnicity unknown	49	190	312
TOTAL	**1,584**	**7,118**	**7,357**

Persistence

Number of degrees awarded by your institution from July 1, 2019, to June 30, 2020.

Certificate/diploma	13
Associate degrees	
Bachelor's degrees	1796
Postbachelor's certificates	3
Master's degrees	4072
Post-Master's certificates	
Doctoral degrees – research/scholarship	158
Doctoral degrees – professional practice	880
Doctoral degrees – other	

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FACILITIES, EQUIPMENT, CENTERS, OR INSTITUTES

Most of the professors conducting relevant work to the agencies that will be engaged in CHWA CESU activities are in the Department of Biology with their faculty labs in Regents and Reiss Halls. We have a full suite of molecular capabilities, and all field work is done at sites owned or operated by other entities.

CONFIRMATION

Mrs. Rocio Marino-Crumley, Manager, Grants and Contracts, confirms Georgetown's willingness to accept a limited overhead rate of 17.5% and cost items to which the rate is applicable for activities conducted through the CESU, including research, technical assistance, and educational services (this overhead rate applies to the entire institution/organization for CHWA CESU activities).

GEORGETOWN REPRESENTATIVES

Peter Marra and Treasa McDonald (contact information below) will serve on the CHWA CESU steering committee and will participate in the CESU annual/semi-annual partner meetings. They will facilitate internal and external communication, promotion, and response to CESU correspondence and administrative actions (e.g., announcements, new member applications, processing agreements/amendments, five-year reviews) and relay agency-specific research, technical assistance, and educational needs and associated funding opportunities to other institutional/organizational members (e.g., faculty, students).

Peter Marra (technical representative)
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Laudato Si' Professor of Biology and the Environment
Professor, McCourt School of Public Policy
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Very sincerely,

Rocio Marino-Crumley

Digitally signed by Rocio Marino-Crumley
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Rocio Marino-Crumley
Manager Grants and Contracts
Office of Research Services