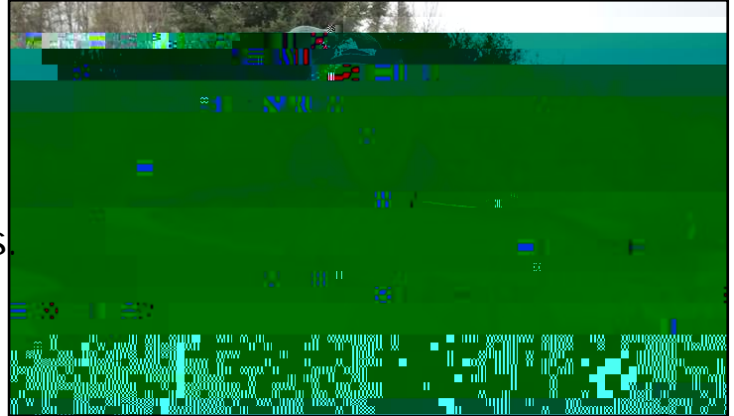


**2019 Distinguished Scientist Seminar**  
Semester in Environmental Science  
MBL ECOSYSTEMS CENTER, WOODS HOLE, MA

**Dr. Michael Pace**  
**Commonwealth Professor, University of Virginia**  
**Dept, Environmental Sciences**

Cross Boundary Fluxes,  
Trophic Cascades, and  
Ecosystem Stability Explored  
with Whole Lake Experiments

**September 13<sup>th</sup> †**

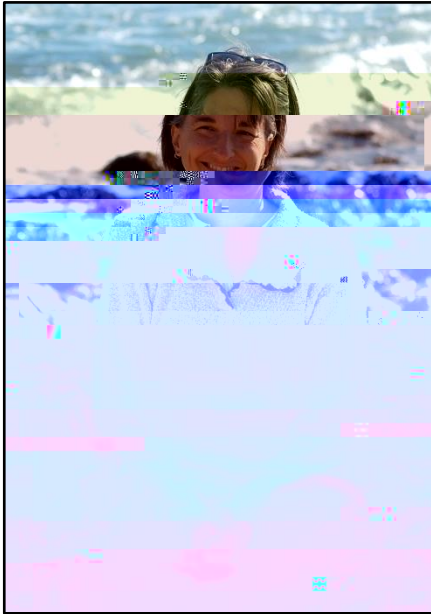


2016. He was elected a Fellow of the American Association for the Advancement of Science in 1983. During 2018-2020, he is serving as President of the American Society of Limnology and Oceanography. He was elected a Fellow of the American Association for the Advancement of Science in 1983. During 2018-2020, he is serving as President of the American Society of Limnology and Oceanography.

**Readings:**

- Pace, M.L., J.J. Cole, S.R. Carpenter, J.F. Kitchell (1999) Trophic Cascades Revealed in Diverse Ecosystems. Trends in Ecology and Evolution. 14:883-889 (required)
- Pace, M.L., J.J. Cole, S.R. Carpenter, J.F. Kitchell, J.R. Hodgeson, M.C. Van de Boer, E.S. Kritzberg and D. Bastviken (2004). Whole-carbon-13 additions reveal terrestrial support of aquatic food webs. Nature 427:220-223 (additional recommended reading)
- Pace, M.L. R.D. Batt, C.D. Burns, S.R. Carpenter, J.J. Cole, J.T. Kurtzweil, and G.M. Wilkinson (2017). Reversal of a cyanobacterial bloom in response to early warnings. Proceedings of the National Academy of Sciences 114:3527-3532 (additional recommended reading)





**2019 Distinguished Scientist Seminar**  
***Semester in Environmental Science***  
**MBL ECOSYSTEMS CENTER, WOODS HOLE, MA**

**Dr. Serita Frey**  
**Professor, University of New Hampshire**  
**Department of Environmental Sciences**

***Going Underground: Unearthing the Role of the Soil Microbiome in a Warmer, Fertilized World.***

**September 27<sup>th</sup> — 3:00 PM**  
**Loeb G70, MBL**

The top few meters of soil around the globe store three to four times as much organic carbon as is present in the atmosphere in the form of CO<sub>2</sub>. In a warmer, wetter world, will microbes in the soil respond by decomposing more of this organic matter to CO<sub>2</sub>, further accelerating climate change? How do greater nitrogen inputs due to acid deposition or increased mineralization affect soil processes, litter decay and microbial communities? These are questions addressed by her work. Her research explores controls on carbon and nitrogen dynamics and fungal communities in soils. Her interests span from the globe to the genome.

Dr. Frey is a microbial ecologist who has led the research into how the composition and function of bacteria and fungi responds to a 30 year soil warming experiment at the Harvard Forest Long Term Ecological Research (LTER) site in Petersham, MA. She is especially interested in the response of mycorrhizae and saprophytic fungi to changing climate and nitrogen inputs.

She received her Bachelor's and Master's degree at the University of Virginia and her doctorate at





**2019 Distinguished Scientist Seminar**  
***Semester in Environmental Science***  
**MBL ECOSYSTEMS CENTER, WOODS HOLE, MA**

**Dr. Andrew Pershing**  
**Chief Scientific Officer**  
**Gulf of Maine Research Institute**

***Survival skills for the Anthropocene:  
what marine heatwaves and other  
ocean surprises can teach us about***



2019 Distinguished Scientist Seminar  
Semester in Environmental Science  
MBL ECOSYSTEMS CENTER, WOODS HOLE, MA

Dr. Jennifer Jenkins

Vice President and Chief Sustainability Officer, Enviva LP

0 R G H U Q E L R H Q H U J \ | V U R t r a n s i t i o n Q W K H J O R E D O

October 25<sup>th</sup> 2 3:00 PM

Loeb G70, MBL

Since the onset of the industrial revolution more than a century ago human activities have released more than 270 billion metric tons of carbon to the atmosphere in the form of CO<sub>2</sub>. Currently, burning of fossil fuels emits more than 20 billion metric tons of carbon annually. To avoid catastrophic climate warming and also supply the energy necessary to maintain human well-being we will have to shift away from fossil fuels to renewable sources such as wind and solar. However wind and solar produce power intermittently, biofuels can help bridge gaps in the need for energy and take advantage of existing energy infrastructure.

One strategy Nations across the globe

## Readings:

How modern bioenergy helps reduce global warming. The Economist <https://www.economist.com/the-economist-explains/2018/10/12/how-modern-bio-energy-helps-reduce-global-warming>

Jenkins, J. (2019) The Carbon Debt Fallacy <http://www.envivabiomass.com/wp-content/uploads/The-Carbon-Debt-Fallacy.pdf>

Wang, W, P. Dwivedi, R. Abt, M. Khanna (2015). Carbon savings with Transatlantic trade in pellets: accounting for market driven effects. Environmental Research Letters doi:10.1088/1748-9326/10/11/114019