

Lab Lines

FEB 2020

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DIRECTOR'S VIEW: THE NEXT GENERATION

I am proud of the educational leadership CBL has shown over the last few years. On Monday, the AAUW section on campus organized a video meeting with Dr. Carlton Green from the UMCP Office of Diversity and Inclusion to discuss "What is this Inclusion thing." Those who attended will tell you what a great seminar it was - for example, I have an understanding about mosquito bites and inclusion I never had before. CBL has hosted similar sessions from the Calvert County Health Department and other groups. Our students have organized most of these and I congratulate them for their leadership. But, the issues we discussed at these meetings are not just for students. Everyone in the CBL community would learn something. I encourage you all to attend.

Why is it important? The front-page picture shows why. We are creating a world for the next generation. They learn by repeating our behavior as Johan and Hali's daughter Nelleke demonstrates. I have been at CBL for 26 years. That means many of our students had yet to be born when I started at CBL. The changes we make today will be inherited in a very short time by a new generation of students and faculty. Let us make it a world we want them to live in.

TRAVEL & AWARDS

Zoriada Perez-Delgado is back from her Sea Grant Knauss Fellowship. She will be on campus this semester finishing up writing her thesis with Hali Kilbourne. Zoriada had an incredible opportunity to work with Craig McLean, Chief Scientist of NOAA's research arm. Please welcome her back to CBL.

Jeremy Testa and Chunqi shen attended the [Ocean Sciences Meeting in San Diego, CA](#) February 16-21.

Solange Filoso was quoted in the Washington Post on stream restoration. Click [here](#) to view the article.

OUTREACH ACTIVITIES

OUTREACH REPORTING - WE NEED YOUR HELP

The CBL Outreach Committee is trying to more fully capture the number and type of outreach activities that CBL faculty, staff, and students support. If you participated in an outreach event that occurred during the 2019 calendar year that was not coordinated by Sarah B., and you volunteered as a representative of CBL, please fill out the following Google Sheet (one event per row): <https://docs.google.com/spreadsheets/d/1HB42e1pQMYL1I5W-FOxcnnn8N-LJkXvq3kE-yULA1AU/edit?usp=sharing>

VOLUNTEER APPRECIATION LUNCHEON

CBL's annual Volunteer Appreciation Luncheon will take place on Tuesday, March 24th at noon.

In 2019, 32 Visitor Center Docents volunteered over 1,000 hours of service to CBL. Five lab volunteers contributed an additional 570 hours of service to CBL.

PUBLICATIONS

Rowe, C.L., Liang, D., Woodland, R.J., 2020. Effects of constant and fluctuating incubation temperatures on hatching success and hatchling traits in the diamondback terrapin (*Malaclemys terrapin*) in the context of the warming climate. *J. Therm. Biol.* 88, 102528. <https://doi.org/10.1016/j.jtherbio.2020.102528>

Su, J., W.-J. Cai, J. Brodeur, N. Hussain, B. Chen, J.M. Testa, K.M. Scaboo, D.P. Jaisi, Q. Li, M. Dai, J. Cornwell. 2020. Source partitioning of oxygen-consuming organic matter in the hypoxic zone of the Chesapeake Bay. *Limnology and Oceanography*, in press. *UMCES Contrib.* # 5735.



Safety Corner: Cheryl Clark

PHYSICAL HAZARDS

(EXCERPTED FROM OSHA 29 CFR 1910.1200)

Physical hazard is a material that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas (29CFR 1910.1200—Physical Hazard Criteria).

Some chemicals have both health and physical hazards associated with them. Physical hazards are the most common and will be present in most workplaces at one time or another. They include unsafe conditions that can cause injury, illness, and death. Physical hazards may manifest as fires, explosions, excessive temperatures, or the release of large volumes of gas or toxic or flammable gases or vapors.

Definitions

The [auto ignition temperature](#) or kindling point of a substance is the lowest temperature at which it will spontaneously ignite in a normal atmosphere without an external source of ignition, such as a flame or spark.

[Compressed gas](#) causes asphyxiation, fire, explosions, and can penetrate the skin like a needle injection.

The [flash point](#) of a volatile material is the lowest temperature at which it can vaporize to form an ignitable mixture in air. Measuring a flash point requires an ignition source. The lower the flashpoint the more dangerous it is. Gasoline is more flammable than diesel. Gasoline will ignite from negative 45°F and upwards. Whereas, diesel needs to be at 144°F before it will ignite. Materials that have a flashpoint below 100 degrees Fahrenheit (38°C) are considered flammable. Materials with a flashpoint between 100°F -200°F are considered combustible.

An [explosive](#) material causes a sudden almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature. The lower explosion limit ([LEL](#)) or lower flammable limit ([LFL](#)) is the lowest concentration of vapor in air which will burn or explode upon contact with a source of ignition. Below the LEL/LFL, the mixture is too lean (i.e. there is insufficient fuel) to burn or explode. The upper explosion limit ([UEL](#)) or upper flammable limit ([UFL](#)) is the highest concentration of vapor in air, which will burn or explode upon contact with a source of ignition. Above the UEL, the mixture is too rich (i.e. there is insufficient oxygen) to burn or explode. The LEL and UEL are usually indicated by the percentage by volume of vapor in air. Example - For diethyl ether, the LEL is 1.9% and the UEL is 36% by volume of air. The range between 1.9% and 36% is the dangerous range of diethyl ether.

Fuel	Flash Point	Auto igniion temp.
Gasoline	-43°C (-45°F)	280°C (536°F)
Ethanol 70%	16.6°C (61.9°F)	363°C (685°F)
Diesel	>62°C (144°F)	210°C (410°F)
Jet Fuel >	>60°C(140°F)	210°C (410°F)
Kerosene	>38°-72°C (100-162°F)	220°C (428°F)
Vegetable Oil	327°C (621°F)	
Biodiesel	>130°C (266 °F)	

LEL/LFL and UEL/UFL

[Oxidizers](#) bring about an oxidation reaction causing a fire of itself or through the release of oxygen or other gases.

[Pyrophoric](#) materials will ignite spontaneously in air at 130°F or below without an ignition source.

[Reactive chemicals](#) cause damage by the release of gases that will burn, explode, or produce high pressure that can cause injury to a person. Organic peroxides, unstable materials, and water reactive materials are examples of reactive chemicals.

Fuel	LEL/LFL%	UEL/UFL%
Acetaldehyde	4	60
Ethyl Alcohol	3	19
Benzene	1.35	6.65
Gasoline	1.4	7.6
Fuel Oil	0.7	5
Hydrogen Sulfide	4.3	46
Toluene	1.27	6.75

Development Activity

The year is off to a good start with gifts from two alumni. Gifts to Chesapeake DolphinWatch and CBL Terrapin, Turtle and Frog research were the first of the new year. The development staff from all the labs are defining and refining the alumni contact list as UMCES approaches its 100th anniversary in 2025.

Wharton works with individual donors and foundations for funding to support students and projects. She also works with the University System of Maryland Foundation (database entry, maintenance, and prospect research.) She helps faculty seeking charitable foundation support and supports the Leonardtown Grant staff who were hired to seek large foundation support for the CBL intern program.

Corporate supporters for the past three years of Science for Citizens were Toyota of Southern Maryland, Team Hyundai, and PNC Banks. Wharton has been invited to apply for sponsorship funds again by these two corporations. In 2019, she applied to PNC Foundation, different from PNC Banks, and was awarded funds to support the CBL intern program, a partnership with the College of Southern Maryland. This is the first time PNC Foundation has funded activity at CBL, and we hope they will continue to support students and programs here.



Almost 1,000 attended the ten Science for Citizens presentations in 2019. The series is sponsored by Toyota of Southern Maryland, Team Hyundai, and PNC Banks.

UPCOMING EVENTS: FACULTY SEMINARS SPRING 2020

- **MARCH 4** Dr. Ekaterina Smirnova, Virginia Commonwealth University.
- **MARCH 11** Dr. Bodil Bluhm, University of Tromsø
- **MARCH 25** Open
- **APRIL 2** Aaron Van Neste, Harvard University. *Inexhaustible optimism: the creation of professional science, ignorant fishermen and the limitless bounty of the sea*
- **APRIL 8** Dr. Silvia Newell, Wright State University
- **APRIL 15** Open
- **APRIL 22** Open
- **APRIL 29** Dr. Leah Palm-Forster, University of Delaware
- **MAY 6** Dr. Lee Blaney, UMBC. *Recovering nutrients from poultry litter with the Phosphorus Extraction and Recovery System (PEARS)*

