

# Lab Lines

SEPTEMBER 2020

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## DIRECTOR'S VIEW

Last night we kicked off our Virtual Science Semester which will combine activities related to our normal Open House and our Science for Citizens Program. We had 148 people on the zoom seminar last evening – from the local community, from the wider metropolitan DC area and from as far afield as Chicago and Atlanta. I want to thank Sarah Brzezinski and Jeane Wharton for all of their hard work setting up the [Virtual Science Semester web site](#) and for all at the lab who have provided content.

You may also have seen our new Solomons Climate sign on campus. The data from the sign come from generations of CBL staff who have collected weather and water quality data from the end of our pier since 1938. The motivation for the sign came from Dr. Laura Lapham who sent me a photo of a similar sign at the French lab where Laura and her family were on sabbatical. Of course, none of this would have come together without the talents of our facilities team who did all the fabrication –including sticking long strips of colored vinyl on 80 aluminium bars that form the sign.

Together the Virtual Science Semester and the Solomons Climate sign are parts of our efforts to engage with the local and regional communities, to let them know what we do, and why it is important. I know these efforts are appreciated and valued by the surrounding community.



## IN CASE YOU MISSED IT

Helen Bailey gave a presentation on “Challenges with plastic recycling” at the Maryland House Environment and Transportation Committee Workgroup on Waste Reduction and Recycling on 20th August 2020. Click [here](#) for a video of the event.

## IF I CAN SMELL IT, AM I IN DANGER?

There is no connection between the toxicology of a chemical and its odor. However, we can ask the question: If I can smell this chemical, am I breathing a harmful concentration?

Odor thresholds are concentrations that 50% of a test population can detect. However, individuals display a very wide range of sensitivity to odor: 15% of a given population cannot detect odors that exceed the threshold by a factor of 4. The width of the odor threshold can be as high as two orders of magnitude for many substances. (If a threshold is 10 ppm, some people can smell the chemical at 0.1 ppm and some cannot smell it at 1000 ppm).

Another factor that influences odor detection is "odor fatigue", which is the phenomenon of decreased sensitivity to odor after some exposure time. This has important implications for laboratorians who may become desensitized to the odor of a harmful chemical, perhaps unknowingly exposing themselves to inhalation hazards for extended periods of times. They may think that the chemical is no longer present when, in fact, they are simply unable to smell it anymore.

How do odor thresholds compare with "dangerous" levels for inhaling chemicals? You may not yet have learned about OELs (occupational exposure limits) and IDLH (immediately dangerous to life and health) values, but these are concentrations in air that are just what the names imply: the limits that are allowed in occupational settings and levels that present immediate hazards. These values can be used to compare odor thresholds to "safe" thresholds to breathe.

The [3M 2009 Respirator Selector Guide](#) has a lengthy list of chemicals, many of which have data for odor thresholds, OELs and IDLH values. Using the first 35 chemicals with all three values listed, we see the ranges of these three values in the table below. The ranges of the data are considerable. As expected, IDLH values are higher than OEL values.

Odor Thresholds Compared with OEL and IDLH Values for Various Chemicals

|                     | Minimum | Maximum |
|---------------------|---------|---------|
| Odor threshold, ppm | 0.001   | 100,000 |
| OEL, ppm            | 0.05    | 5,000   |
| IDLH, ppm           | 6       | 50,000  |

The table gives some clue to the answer to the question: "Can odor be used to detect the harmful level of a chemical?" The general answer is "yes", but with many cautions. Most of the time the median odor threshold is above (ratio > 1) or considerably above (ratio > 100) the OEL and IDLH values as shown in the table below. However, for 6% (IDLH) and 26% (OEL) of the time the chemical is harmful below the odor threshold. Also taking into consideration the enormous range of individual variation in odor thresholds, it's hard to know how a single individual should interpret the data.

|                     | Percentage where ratio > 1 | Percentage where ratio > 100 |
|---------------------|----------------------------|------------------------------|
| IDLH/odor threshold | 94                         | 77                           |
| OEL/odor threshold  | 74                         | 28                           |

So, while it may be likely that you can "smell it before it harms you", that surely is not always the case. The best practice in labs is not to be working in an environment where chemical odors are present. If you do smell chemicals, the ventilation and containment are not adequate. This requires the use of chemical hoods for many procedures and requires that chemicals be stored in well ventilated cabinets or areas.

For more information:

[Respirator Selection](#)

[Respirator Filter Selection Guide](#)

# Outreach

## Visitor Center

Out of an abundance of concern related to the COVID-19 pandemic, the Chesapeake Biological Laboratory Visitor Center will remain closed throughout the 2020 calendar year.



## Fall 2020 Science for Citizens Schedule

As the oldest state-supported marine lab on the East Coast, Chesapeake Biological Laboratory scientists continue to develop new approaches to solving the environmental management problems facing Maryland, our nation, and our world.

Though our doors must remain closed to the public during the COVID-19 pandemic, our Science for Citizens seminars, now hosted on Zoom, invite you to learn about innovative research from the comfort of your own home. Members of the public and the CBL community are all welcome!

A FREE Science for Citizens seminar will be presented every Tuesday at 7:00pm from September 29th through October 27. Following each presentation, there will be a moderated question and answer sessions.

Pre-Registration is now required, and can be completed at: <http://www.usmf.org/scienceforcitizens/>

- **OCTOBER 6** Dr. David Secor, *Striped Bass are Built for Success: Weathering pollution, climate change, and their own charismatic stripes*
- **OCTOBER 13** Dr. Ryan Woodland, *Patuxent River Research Cruises: Building on a scientific & educational legacy*
- **OCTOBER 20** Dr. Jeremy Testa, *Decades of Change in the Patuxent River and its Tributary Companions*
- **OCTOBER 27** Dr. Helen Bailey. *Reducing Plastic Waste and Pollution*

Fall 2020 Science for Citizens Seminars are hosted as a part of the Virtual Science Semester. Learn more at: <https://www.umces.edu/cbl/ScienceSemester>

## Creativity Challenges

The Chesapeake Biological Laboratory continues to host biweekly Creativity Challenges to help maintain a sense of community and to combat stress during the COVID-19 pandemic. Faculty, staff, and students can complete these family-friendly activities with their children, family, or friends in their households. Challenges are opened for all-UMCES participation.

Please congratulate recent Creativity Challenge winners.



Amie West, was awarded Best Summer Snowman/Snowwoman! Her "like a moss!" entry is beautiful, creative, and so full of summer fun that it would make Olaf jealous! Honestly, that is one cool summertime snowperson. The details on the face and hat are particularly amazing.



Dan Read, was awarded Most Creative Snowman/Snowwoman! So far in the Creativity Challenges, I don't think we've ever seen someone make a clay sculpture. Often when we build snowpeople, we stick to three big snowballs. Dan's entry, "In celebration of Ganesh Chaturthi, a clay Ganesh snowman" broke the mold!

## Development Activity: Jeane Wharton

A recent Lending Tree survey painted a troubling picture for charitable giving. In early 2020, survey respondents said they planned to maintain their giving levels. Similarly, donations to CBL were steady in comparison to 2019 and 2018. As the first quarter of the new fiscal year ends, donations to CBL are down. A few donors have said they'll "wait until Fall," so maybe as we have our Giving Tuesday event around Thanksgiving, those donors will respond.

A small percentage of CBL supporters have increased their donation amounts. Several donors in the last month gave twice what they've given in past years. There has been an increase in donors giving \$1,000 or more, including a \$3,500 gift from a donor in Virginia.

In the months since telework began in March, Wharton stays in contact with CBL donors and prospective donors through emails, texts and phone calls. On the phone or in email, donors have praised Science for Citizens presentations, and they're looking forward to the online version of Science for Citizens starting September 29. (Thank you to Dr. Miller, Renee Arnold and especially Sarah Brzezinski and Carin Starr (HPL) and Kurt Florez).

Wharton and other UMCES development staff meet frequently by phone and Zoom with Vice President for Strategic Initiatives Stuart Clarke. Development staff has had extensive online training with the Ellucian Advance database, the large database hosted by the University System of Maryland Foundation.

A couple of past donors have asked about the "Faculty Wish List." In prior years, several donors enjoyed giving funds or equipment for specific research programs or to support a student with a particular emphasis. If you have a "wish" for the list, contact [jwharton@umces.edu](mailto:jwharton@umces.edu).

# Publications

Wegner Koch, C., Cooper, L.W., Grebmeier, J.M., Frey, K., Brown, T.A. 2020. Ice algae resource utilization by benthic macro- and megafaunal communities on the Pacific Arctic shelf determined through lipid biomarker analysis, in-press, Marine Ecology Progress Series, <https://www.int-res.com/prepress/m13476.html>

Redding, S.G., Cooper, L.W., Castonguay, M., Wiernicki, C., Secor, D.H., 2020. Northwest Atlantic mackerel population structure evaluated using otolith  $\delta^{18}\text{O}$  composition. ICES Journal of Marine Science. [doi 10.1093/icesjms/fsaa117](https://doi.org/10.1093/icesjms/fsaa117)

Itakura H, Yokouchi K, Kanazawa T, Matsumoto M, Matoba T, Wakiya R, Shirai K, Ishimatsu A (2020) Diverse downstream migration patterns of the anadromous Japanese grenadier anchovy *Coilia nasus* in the Chikugo River estuary and Ariake Sea, Japan. Regional Studies in Marine Science. Vol. 39. <https://doi.org/10.1016/j.rsma.2020.101436>

## UPCOMING EVENTS

### Invitation to UMCES Weekly Mindfulness

Join Denise Yost and your colleagues as we continue to find small ways to practice mindfulness and find a bit more ease during our continued quarantine. Practice continues in the usual friendly format, no experience necessary. Practice in real time and engage with others in short discussion questions as you'd like.

Thursdays @ 2:00pm, Staff/FRAs/Faculty/Graduate students

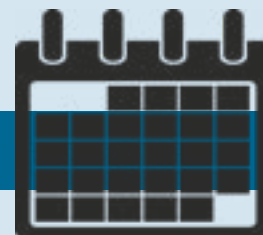
Join Zoom Meeting (Updated)

<https://zoom.us/j/96939404575?pwd=bjU2YzZhR0Z5TGfYSlFyT2lxQzltQT09>

Dial +13017158592

Meeting ID: 969 3940 4575

Password: 277857



## DISTINGUISHED SCHOLAR SEMINARS 2020

Wednesday's at 3:30 PM

Join Zoom Meeting: <https://zoom.us/j/96105792609?pwd=QmhwUGpMQ3ZPWGFoT2MzRzFacIM5QT09>

Dial +13017158592

Meeting ID: 961 0579 2609

Passcode: 1925

- **OCTOBER 14** Dr. Marco Hatch, Western Washington University. *Clam Gardens*
- **OCTOBER 21** Dr. Matthias Egger, The Ocean Cleanup. *The fate of floating plastic debris in the ocean*
- **OCTOBER 28** Dr. Danielle Haulsee, Stanford University. *Dynamic management of marine species*
- **NOVEMBER 4** Dr. Scott Lynn, EPA. *EPA's high throughput toxicity and endocrine disruptor screening programs*



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