

# Lab Lines

APRIL 2019

**IN THIS ISSUE:**

- COVER STORY/  
RESEARCH AND  
AWARDS /STUDENT  
AWARD 1
- SAFETY CORNER 2
- PUBLICATIONS/  
WHO'S ON TRAVEL?/  
OUTREACH/UPCOMING  
EVENTS 3

## Tracking Turtles with Telemetry

**D**rs. Aimee Hoover, Dong Liang, and Helen Bailey worked with a new model that predicts where Eastern Pacific leatherback turtles travel to help protect endangered species.

A new model has been created that can forecast the location of Eastern Pacific leatherback turtles along the coast of Central and South America in an effort to decrease bycatch mortality of this critically endangered and ecologically important species.

Read the full article in [ScienceDaily](#).

## RESEARCH & AWARDS

**D**r. Laura Lapham received additional time and funding from L'Oreal (American Association for the Advancement of Science, AAAS), July 26, 2017 to December 31, 2019. The title for this project is: *Tiny Bubbles Mentoring Project: A hands-on research experience for community college STEM students*.

Drs. David Secor and Helen Bailey received additional time and funding from the Department of Defense, Defense Advanced Research Projects Agency (DARPA), November 14, 2018 to May 31, 2020. The title for this project is: *PALS: Telemetry-aided instrumented living sensors: Phase-1 Task 1*.

## STUDENT AWARD

Hadley McIntosh has been awarded the Ann G. Wylie Dissertation Fellowship for one semester during the 2019-2020 academic year.

The Ann G. Wylie Dissertation Fellowship supports students with excellent qualifications who are in the latter stages of writing their dissertations. The Graduate School is pleased to provide her with full support for one semester and will help her complete her Ph.D. by August 2020.

The Fellowship carries a \$15,000 stipend, a candidacy tuition award, and a credit for mandatory fees for one semester. In addition, she may request reimbursement for the purchase of her individual student health insurance plan. Wylie Fellows are expected to devote full attention to their dissertations.

This month I have an excerpt from the Hazard Communication standard on toxicology. It is important to remember that just because you are using a chemical below its LD 50 does not mean you will not suffer some effect if you have an accident. It may not be fatal, but it can incapacitate, cause chromosomal or DNA damage, cancers and other maladies that may not be readily apparent. So please be sure to use the appropriate PPE when using toxic chemicals in the lab and at home.

### **Hazard Communication Right to know OSHA 29 CFR 1910.1200 (pg.4)**

The science of toxicology is based on the principle that there is a relationship between a toxic reaction (the response) and the amount of poison received (the dose). An important assumption in this relationship is that there is almost always a dose below which no response occurs or can be measured. A second assumption is that once a maximum response is reached, any further increases in the dose will not result in any increased effect. Knowing the dose/response relationship is a necessary part of understanding the cause and effect relationship between exposure and illness. “The right dose differentiates a poison from a remedy”.

One of the more commonly used measures of toxicity is the LD50. The LD50 (the lethal dose for 50 percent of the animals tested) of a poison is usually expressed in milligrams of chemical per kilogram of body weight (mg/kg). A chemical with a small LD50 (like 5 mg/kg) is very highly toxic. The more toxic a material, the smaller amount necessary to cause harm. A chemical with a large LD50 (1,000 to 5,000 mg/kg) is practically non-toxic. Recognize that the LD50 says nothing about non-lethal toxic effects though. A chemical may have a large LD50, but may produce illness at very small exposure levels. It is incorrect to say that chemicals with small LD50s are more dangerous than chemicals with large LD50s, they are simply more toxic. The more toxic a material is, the smaller the amount of it necessary to be absorbed before harmful effects are caused. The lower the toxicity, the greater the quantity is needed for it to be absorbed and be harmful. The danger, or risk of adverse effect of chemicals, is mostly determined by how they are used, not by the inherent toxicity of the chemical itself.

### **In Memoriam – Elizabeth Griffin - December 10, 1997**

Elizabeth Griffin was a 22-year-old student at Yerkes Regional Primate Research Center at Emory University. She worked with diseased animals and had always been careful to use a mask and gloves when working with them and she was usually separated from them by a mesh cage. However, one day she was helping to move a hepatitis B infected macaque when the animal flung a piece of feces or drop of urine at her and hit her in the eye. She was wearing her mask and gloves, but did not wear goggles. She dismissed this as inconsequential since it was such a small incident and she was not sure what went into her eye. Ten days later her eye became inflamed and four weeks later she became weak in her legs and paralyzed. It was too late for any treatments by the time she was diagnosed with hepatitis B and she later died.

<https://www.the-scientist.com/news/yerkes-center-osha-settle-death-case-56686>

<http://www.spokesman.com/stories/1997/dec/13/virus-from-monkey-kills-researcher-22-experts/>

<https://www.nytimes.com/1997/12/14/us/a-drop-of-virus-from-a-monkey-kills-a-researcher-in-6-weeks.html>

**Testa, J.M., Lyubchich, V., and Zhang, Q., 2019.** *Patterns and trends in Secchi disk depth over three decades in Chesapeake Bay estuarine complex.* *Estuaries and Coasts*, doi:10.1007/s12237-019-00547-9. [UMCES Contribution No. 5610].

**Mitchelmore, C.L., He, K., Gonsior, M., Hain, E., Heyes, A., Clark, C., Younger, R., Schmitt-Kopplin P., Feerick, A., Conway, A. and L. Blaney. 2018.** *Occurrence and distribution of UV-filters and other anthropogenic contaminants in coastal surface water, sediment, and coral tissue from Hawaii.* STOTEN, <https://doi.org/10.1016/j.scitotenv.2019.03.034>. [UMCES Contribution No. 5590].

**Mitchelmore, C.L., and Davies, I. 2018.** *Environmental risk assessment of UV filters in freshwater and marine environments.* Session summary from SETAC North America, 2018, SETAC Globe, Volume 20, Issues 2 and 3. <https://globe.setac.org/setac-sacramento-session-summaries/>. [UMCES Contribution No. 5615].

**Mitchelmore, C.L., Bejarano, A.C. and D.L. Wetzel. 2018.** *A synthesis of Deepwater Horizon oil, chemical dispersant and chemically dispersed oil aquatic standard laboratory acute and chronic toxicity studies.* In Book 1: Deep Oil Spills – Facts, Fate and Effects, Springer publishers. In Press. [UMCES Contribution No. 5608].

**Mitchelmore, C.L., Griffitt, R.J., Coelho, G.M. and Wetzel, D.L. 2018.** *Modernizing protocols for aquatic toxicity testing of oil and dispersant.* In Book 2: Scenarios and responses to future deep oil spills – fighting the Next War. Springer Publishers. In Press. [UMCES Contribution No. 5613].

Dr. David Secor presented Keynote addresses at the Atlantic Salmon Ecosystems Forum in Quebec, Canada. The title of his address: *Fish Migration and Range Shifts: A March or a Sprint?*

Dr. Carys Mitchelmore provided testimony at a hearing in Miami Beach, FL regarding the proposed ordinance on the banning of the sale of sunscreens containing oxybenzone and octinoxate. She presented a summary on the current state of the science on the concentration of these chemicals around coral reefs.

Dr. Helen Bailey and laboratory assistant, Amber Fandel, traveled to Georgetown University to the Southeast and Mid-Atlantic Mammal Symposium conference.



## OUTREACH

### Visitor Center

Come to the Chesapeake Biological Laboratory Visitor Center during Calvert and St. Mary's County spring breaks! See our [website](#) for hours and days of operation.

### Visitor Center Volunteer Training

Would you like to become a Chesapeake Biological Laboratory Visitor Center docent? Volunteer docents independently run the CBL Visitor Center, explain our research to the public, and help guests understand the importance of the work we do. Contact the Outreach Coordinator ([brzezins@umces.edu](mailto:brzezins@umces.edu)) to register to attend your first training session on Monday, April 15th from 1:30pm - 3:30pm.

### 2019 Science for Citizens Seminars

April 2, Laura Lapham, Ph.D., *Tiny Bubbles Mentoring: A hands-on research experience for community college STEM students.*

April 9, Hali Kilbourne, Ph.D., *Sea Level Rise in Maryland: Preparing for future and current changes.*

April 16, Suzan Sharestani, Ph.D., *Embracing Uncertainty: From scientist to entrepreneur.*

April 23, Helen Bailey, Ph.D., *PlasticWatch: Reducing plastic waste on Solomons Island.*

## UPCOMING EVENTS



**Save the date** on your calendars for CBL's 3rd annual Open House.

Last year CBL welcomed almost 1000 visitors to the lab - the most successful Open House to date!

