



THE INTRO MARINE BIOLOGY GROUP PARTICIPATED IN ORCA BOWL 2016 AT UW CAMPUS

# MESA SEATTLE

## Saturday Academy

March 28, 2016

FEBRUARY SATURDAY ACADEMY

# Saturday Academy:

by Brian Tracey

Welcome to Seattle MESA's Saturday Academy Monthly Newsletter. In this exciting February issue, we will look at oceanography, food research facilities, and review the highlights of our action-packed February sessions. As always, take a peek at our announcements page for important dates and special events.

## Honorable Mention:

With all of the month's events and activities, we would be remiss if we did not acknowledge February as Black History Month. Although a single month does not adequately do justice to a group as integral to America as Black Americans, we salute all the Black Americans that contributed to the prosperity of this country.

## In case you missed it:

February was a fun-filled month. It was untraditional in the sense that we held two sessions instead of one, which meant more activities, more learning, and more adventure. The intro marine biology group spent the first session understanding how ocean systems work, and how different organisms adapt to the physical components of the ocean (tides, currents, circulation, etc.). They toured one of UW's research vessels, conducted a live plankton tow, saw a

scaled map of the Puget Sound waterways. The second session included: sea bird identification, a tour of UW autonomous sea float facility, and the ORCA Bowl.

During their first session, the advanced group explored the physiology of plankton using high power microscopes. They also got a special guest visit from a member of the U.S. Coast Guard, speaking about his experience aboard one of their ice-breaker research vessels. They also went on an in-depth tour of a UW research vessel, learning about the various careers one can have on a ship. Their second session was spent at the Seattle Aquarium, learning how the facility operates, and spending some time doing field observations of some its animals.

The food science crew spent their first session discussing GMO's (see last issue for explanation) and extracting DNA from fruit. Local business owner, Chef Dayo, visited the group to speak about her journeys in entrepreneurship as a Black woman and avid food-lover. Their second session was spent at *Continental Mills Research and Design Facility* to get a behind-scenes look at the interdisciplinary approach those scientist to take make a tasty, yet profitable food item.



## Intro Marine Biology

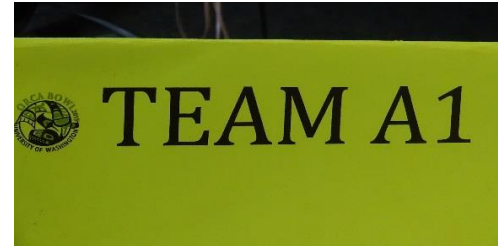
What happens when art meets science? We get hand-made paper plankton ready to drift through the...air? Students test and observe how shape affects plankton mobility in the ocean columns.



## Food Science

Introducing Chef Dayo. The entrepreneur spoke with our students about her experiences as Black small business owner and the importance of pursuing your passion.

# Orca Bowl 2016: Tournament of Marine Science Gladiators



*The Orca Bowl is an annual competition that challenges and recognizes Washington State's high school students' knowledge of the world's oceans. During the daylong event, hosted at the University of Washington Seattle campus, teams compete in a round-robin tournament followed by a double elimination round.*



### FOR MORE INFORMATION

Know a school group interested in competing in Orca Bowl 2017? Thinking about being a volunteer? Please contact:

MAILE SULLIVAN, MARINE EDUCATION SPECIALIST, WASHINGTON SEA GRANT  
mailesul@uw.edu

# Behind the Scenes: the Seattle Aquarium

*Dave Glenn returns. The Youth Engagement Coordinator from the Seattle Aquarium gives an in-depth tour of how the facility is maintained. Students learned about the filtration systems, heating/cooling pipes, and cleaning procedures that keep water tanks healthy and safe for its creatures.*





### Puget Sound Waterways

Intro students get a magnified look at the labyrinth of waterways that encompass the entire Puget Sound area. They also learn how damage to one area effects the other areas.



### Under the Microscope: Plankton

After doing a live plankton tow aboard a UW research vessel, students analyzed and recorded their specimens' physiology to better understand their movement patterns.

#### FAST FACTS

3

Average number of out-of-classroom learning opportunities students experience in normal Saturday Academy monthly session.

13

Number of out-of-classroom opportunities students experienced for the month of February.

# Learning outside the Classroom: Spotlight on real-time science

by Brian Tracey

## Field Experience

Do you remember the days when we used to sit in a science classroom, learning about the wonders of the world? Do you also remember wishing those wonders could exist at your fingertips, and not at the tip of your instructor? Well, the days of only experiencing science vicariously through your professor are becoming obsolete.

Students are increasingly finding themselves out in the field and in the laboratory, experiencing science in real-time... in the world. Learning is best done by doing. By making science tangible, students are better able to grasp concepts that for a long time, only existed in textbooks. Not only is this a great way to learn, but it also gives students an advantage as they exit the school system and enter the workforce.

Today, employers are seeking candidates that already have related experience in the positions they are applying for. This is especially true for STEM jobs since the competition is so fierce. Students from traditionally underserved communities tend not have access to such opportunities, placing them at a competitive disadvantage compared to their peers. Therefore we seek to close the opportunity gap as best we can.



### Unmanned Autonomous Floats

The device allow for continuous monitoring of the temperature, salinity, and velocity of the upper ocean. Students tour the testing facility here on UW campus.



### Extracting Strawberry DNA

Ever wanted to extract DNA from a living organism? Food Science students learned a simple do-it-yourself method to remove live DNA from strawberries.

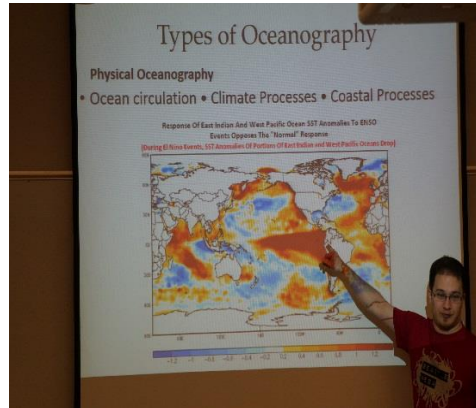
#### FOR MORE INFORMATION

Know a high school student that would be interested in Saturday Academy 2016-2017? Please contact:

BIAN TRACEY, PROGRAM COORDINATOR,  
SEATTLE MESA  
Briant54@uw.edu

## Name that discipline!

Can you guess which areas of marine science these scientists represent?



## Now you see it, now you don't: the effect of ocean acidification on egg shells



### Observations

Part of the scientific method involves simple observation. Documenting the happenings of the various components in your experiment are crucial to forming and understanding your conclusion.

### Did You Know...?

Just like the eggs of their marine invertebrate relatives, chicken egg shells are made of **calcium carbonate**. This also means they too are sensitive to low pH levels in bodies of water.



### The Conclusion

Voila! Prolonged exposure to low pH, higher acidic environments disintegrates the protective layer of egg shells. This has serious implications in relation to species survival. With weaker or absent protective layers, larval eggs are more susceptible to predation.



### The Question

Dr. Kristi reveals a chicken egg, fresh and complete with the shell intact. In her other hand, is a liquid with a low pH level. What happens when the egg is placed in liquid with low pH?



### Hypothesis

Hmm. Maybe the shell of an egg in this lower pH environment will dissolve over time. Maybe there will be no effect. I wonder what will happen.

Important Dates and Announcements:  
Remaining Saturday Academy sessions 2016:

April 2<sup>nd</sup>  
April 30<sup>th</sup>

Upcoming Field Trips

April 2<sup>nd</sup>

**Advanced Marine Biology** Salish Sea research boat trip  
**Food Science** trip to Rainier Beach Urban Farm and Wetlands

Important Announcements

March 30<sup>th</sup>, 2016

**Hispanic Fund General Scholarship**

For graduating high school seniors planning on attending a 4-year accredited college or university. Must have a minimum gpa of 3.0 and must be Hispanic.

<https://hsf.net/en/scholarships/programs/general-college-scholarships>

March 31<sup>st</sup>, 2016

**BECU Foundation Scholarship**

For graduating high school seniors planning to attend college, and who are also BECU members. Students must have at least 3.0 cumulative gpa to be eligible.

<http://www.becu.org/members-matter/community-involvement/scholarships>

April 1<sup>st</sup>, 2016

**Washington MESA Scholarships**

Boeing and Weyerheuser Scholarship, available to all high school seniors.  
Patricia MacGowan Scholarship, available to all high school sophomores.

<http://washingtonmesa.org/mesa-scholarships>

April 30<sup>th</sup>, 2016

**Saturday Academy Celebration**

End of the 2015-2016 Saturday Academy celebration. Open to Saturday Academy students, parents, friends, guest presenters and any other friends and family of Seattle MESA.

**Useful Resources for Parents**

Helping your students thrive at school

<http://www2.ed.gov/documents/family-community/parent-checklist.pdf>