

STEM Journey II: Great White Sharks to Deep Ocean Exploration

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Saturday March 28, 2015 was the day that we took over the campus of Cape Cod Community College in Barnstable, MA for our STEM Journey II event. Events were held in Telden Hall, Grossman (Cafeteria), Larusso Science building, Lecture Hall B and the STEMnasium. The sponsors of the program are shown in Fig. 1.



Fig. 1 Sponsors and Committee Members

We had two keynote speakers: Dr. Dave Gallo, Director of Special Projects at the Woods Hole Oceanographic Institute, and Tobey Curtis, Fishing Analyst and Shark expert of the National Oceanographic and Atmospheric Administration. About 450 bracelets were handed out for the two keynote speakers. Each speaker spoke twice and the talks were very educational and enjoyable for the children, parents and grandparents.

Dr. Gallo talked about how little we know about the ocean, since only about 8% has been explored. The tallest mountain in the world at 50,000' is beneath the sea off the coast of Iceland. He has gone with Bob Ballard of WHOI on three trips to the Titanic. He also helped to find the Bismark. More recently, he worked on finding Malaysian Air Flight 740 that was lost in the Indian Ocean and still hasn't been found. He also talked about the amazing sea creatures that he has seen in the ocean depths. He talked about how little water that there actually is on the earth, even though 70% of the earth is covered with water. To find out more <http://www.whoi.edu/profile/dgallo/> .

Tobey Curtis talked about the habitats and migratory patterns of the great white sharks. The great whites had not been protected until the early nineties when their numbers dropped perilously low. It took until 2005 for the great white population begin to increase. The media noticed a NOAA report about the increase and reported “an explosion in the great white shark population” when the actual numbers were only 40% of the 1992 population. Tobey went on TV to explain that the “explosion” was only a fabrication of the media. It was only recently that NOAA and other groups began to tag great whites to determine their migratory habits. They have tagged nearly 70 and found many unexpected results. In the summer they like to vacation in Southern NE and Cape Cod. They love to feast on the abundant seal population at the Cape. To find out more: http://www.nmfs.noaa.gov/stories/2014/08/shark_stories_365.html.

The cafeteria had 26 organizations exhibiting STEM related activities, including a Walk through Right Whale, making Shark hats, Squishy circuits, a Lego Lab, duct tape kayaks, Ruminant Home building, Cambridge Science in the Streets . This area was overflowing for the entire event.

Exhibitors

- Barnstable Amateur Radio
- Cape Light Compact
- Cape Cod Community College Lego Lab
- MA Maritime Academy
- Northeastern Section of the ACS
- Cape and Islands Council of the BSA
- Seabotix
- Oceans Wide
- Sandwich STEM Academy
- Green Briar Nature Center
- National Marine Life Center
- Chatham Shark Center
- PID Analyzers, LLC
- Chatham Marconi Maritime Center
- Frogmen Divers
- Duct Tape Kayaks
- Stellwagen Bank Life Sanctuary
- WDC 55' Whale Model
- Cambridge Science Festival-Science in the Streets
- Cape Cod Museum of Natural History
- Ruminant Home Building
- Squishy Circuits
- Lewis Bay Research Center
- Agriculture Research Center (ARC)
- Thornton Burgess Society

Some info from the Girl Scout attendees: one wants to be a geologist or a marine biologist; another is interested in being a veterinarian or a marine biologist. Apparently, they heard our keynote speaker's lectures! Mary Ann Bragg, the Cape Cod Times reporter, was amazed to see a thousand boys and girls come together and be so excited to meet and talk to down-to-earth STEM professionals.

A popular attraction in the STEMnasium was a 55' right whale from WDC in Plymouth. This was in a small lecture area that could hold about 20 people at a time. There was a duct tape boat and the opportunity for students to make a scale model of the boat out of duct tape.

Hands-on experiments were demonstrated at the tables of ACS.NESACS and the Greenbriar Nature Center. Cambridge Science in the Streets had 5 tables of hands-on experiments.

Some of the numbers for the STEM Journey event are shown below:

- 7 Number of STEM Journey sponsors
- 150 Scout merit badges in Oceanography, Chemistry, Scientist
- 100 Volunteers
- 450 Number of bracelets issued for the 4 Keynote Talks
- 1,100+ Number of visitors to STEM Journey II

Conclusions;

- We had a very successful STEM Journey II event with an increase of 46% in attendance, in spite of a snow storm.
- We had the first STEM Jobs Panel specifically for grade 8-12 students, guidance councilors and teachers. Many of the companies who participated indicated that the number of STEM Jobs varied from 45-87.5% of the total. A STEM education is very important to consider
- We had significant attendance from K-7, parents and grandparents
- We would like to increase the attendance for grades 8-12, parents, guidance councilors and teachers at our STEM Jobs panel next year

STEM Jobs Panels;

Expected audience: students (grades 8-12) & parents, guidance counselors, teachers

1. Industries: Cape Cod Healthcare & Medical Device Manufacturing; Panelists- Dr. Jack Driscoll, Nova Biomedical, Anne Bastianelli Epiphany Software, Medtronics- Discussion about STEM Jobs, Background Needed, and number of STEM jobs in the various companies.
2. Industry: Oceanography & Education- Woods Hole Oceanographic Institute - Panelists- Tina VP of human Resources + 3 others; Discussion about background of each, how they got into science and their present job at WHOI, also STEM job % at WHOI.

The slides for STEM jobs are located on the NESACS website in the STEM section www.nesacs.org/section_act_stem.html

Special thanks to Cape Cod Community College for the use of their facilities and staff