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# SeaPerch Rides California Science Wave



Midshipman 1st Class Jennifer Nielsen, center, explains to students how the Naval Academy SeaPerch remote-control submarine operates during the USS California Science Experience event at Naval Surface Warfare Center, Corona Division. The event introduced students to real world applications of science, technology, engineering and math. U.S. Navy photo by Greg Vojtko

By Troy Clarke  
Naval Surface Warfare Center Corona  
Public Affairs

A Navy ensign had just finished demonstrating a SeaPerch submersible robot in 12-foot pools to a group of Girl

Scouts when one fascinated father told another parent that buying and building a SeaPerch might be an ideal scout project.

"I wonder how much that costs?" he asked as they both walked away. "What was the name of the company?" Although they kept walking, it was apparent from their conversation they were serious about pursuing the project.

Ensign Natalya Aoki of Seattle, Wash., a recent Naval Academy graduate, and Midshipman 1st Class Jennifer Nielsen, from Irvine, Calif., answered plenty of other parents' questions about SeaPerch as they demonstrated the nimble underwater robot for about 750 students and parents on a weather-perfect day at the Naval Surface Warfare Center, Corona Division in Southern California Nov. 6.

The Corona Warfare Center was the launch site for the "USS California Science

Experience," a series of exhibits promoting science, technology, engineering and mathematics (STEM) and is part of a bicoastal celebration for the christening of the Navy's newest fast-attack submarine California (SSN 781), the first-ever submarine to be named after the Golden State. California was christened in an East Coast ceremony at Northrop Grumman Shipbuilding in Newport News, Va., where the Virginia-class submarine was built.

The three-city "USS California Science Experience" tour stopped at the Admiral Kidd Conference Center in San Diego Nov. 15 and the California Science Center in Los Angeles Nov. 18 and follows a series of events across the nation the Navy is using to nurture the next generation of scientists and engineers.

SeaPerch was a highlight among dozens of science exhibits on display to inspire young students to view science as exciting and consider careers in technology that not only pay well, but provide the nation with a strong technological workforce necessary to compete against other global powers.

Students and parents from Southern California came to the naval science and

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# Midshipmen Attend Young Atlanticist Summit

By Jessica Clark  
Trident Managing Editor

Two Naval Academy midshipmen attended the Young Atlanticist Summit in Lisbon, Portugal, Nov. 19-20, held in conjunction with the North Atlantic Treaty Organization's 2010 summit meeting.

Midshipmen 1st Class Sam Calaway and Joseph Kurtenbach joined students and young professionals from all over the world - including non-NATO countries - for two days of discussions and presentations from international diplomats, military and political leaders, and other experts in international affairs.

The experience contributed to the research each midshipman is conducting for their senior capstone projects. Calaway is writing a paper on NATO-Russian relations and Kurtenbach is writing about the International Security Assistance Force (ISAF) in Afghanistan.

Launched in 2008 at the NATO Summit in Bucharest, Romania, the goal of the Young Atlanticist Summit is to connect young professionals with each

other and with international leaders.

NATO summit meetings provide a periodic opportunity for political leaders of NATO member countries to discuss and develop strategic guidance for alliance activities and often result in new policies and initiatives as well as efforts to partner with non-NATO countries.

The main topic of discussion at this summit was the future of NATO presence in Afghanistan. Speakers included commander of European Command Adm. James Stavridis, ISAF commander Army Gen. David Petraeus, United Nations Secretary General Ban Ki-moon and NATO Secretary General Anders Fogh Rasmussen. The midshipmen also participated in a video



From left, Luso-American Foundation executive Charles Buchanan (USNA '56), Midshipman 1st Class Sam Calaway, Portuguese midshipmen Daniel Filipe Roxo, Midshipman 1st Class Joseph Kurtenbach, Portuguese midshipman Miguel Navalhas, and Dana Redford, a professor at Catholic University in Lisbon, Portugal, stand at a display Nov. 19 for the Young Atlanticist Summit in Lisbon, Portugal. Photo courtesy of Midshipman 1st Class Joseph Kurtenbach

teleconference with students in Afghanistan.

One of the key elements of the 2010 summit in Lisbon was the discussion of a new strategic concept. Typically updated

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engineering command that is the Navy's newest federal laboratory and is the service's independent assessment agent responsible for gauging the warfighting capability of weapons and integrated combat systems through assessment of systems' performance, readiness, quality, supportability and adequacy of training.

NSWC Corona commanding officer Capt. Jay Kadowaki told students and parents the stakes are high for inspiring larger numbers of students at an early enough age so that they learn to excel in math and science in high school and college.

"Our future depends on events like these," the 1986 Naval Academy graduate said.

Sponsored by the Office of Naval Research, Naval Sea Systems Command and others, each SeaPerch costs about \$100, and the set of required tools costs another \$200. Some seventh and eighth graders spend months working on their vessels, trouble-shooting the three battery-powered motors that allow the craft to dive and climb, turn and swirl around.

"It's a good challenge," NSWC Corona engineer Bob Beauregard said of building a SeaPerch, which took longer than he anticipated. Assembling one provides the basics for learning about electrical circuitry. Beauregard said he was so impressed with the project that he would use SeaPerch in future educational events.

That's the whole point, according to Aoki and Nielsen. Students learn new engineering skills as they assemble each part.

"Why are underwater robots important?" Aoki asked a group of students lined up beside the water pool.

Nobody had the precise answer, so Aoki explained that oceans are often too deep for submariners to fully explore. Underwater robots are

scientists' eyes and ears in dangerous and inaccessible places, she said.

Their attention soon turned to the bobbing robot awaiting the next helmsman. Today's kids, who have grown up with remote controls on televisions, computers and other electronic devices, needed little instruction to launch their first underwater mission, easily manipulating SeaPerch from port to starboard, from diving to surfacing.

The SeaPerch's remote control box with simple toggle levers passed from one youngster to another as they pretended to plumb the ocean's depths. "It's awesome how you can control it," said Natalie Teague, a 10-year-old fourth grader from Corona, Calif.

The academy sent Aoki and Nielson as special emissaries to reach and teach as many kids as possible by demonstrating that science and engineering can be fun for anybody. And SeaPerch not only captured the attention of lots of boys, but also lots of girls.

Inspiring females to become scientists and engineers is a high priority to improve the balance and diversity in largely male-dominated engineering fields. Seeing two young sharp females with math and science skills representing the Naval Academy only pressed that point harder to mothers and fathers. Many parents warmly thanked the ensign and midshipman for serving their nation and for their positive image for the students.

"This was really great," Aoki said afterwards. Many teachers were interested in building a SeaPerch despite seeing their classroom budgets cut because of reduced state funding. They said SeaPerch is ideal for providing hands-on activities, and backers say these classroom projects dramatically boost students' interest in STEM programs.

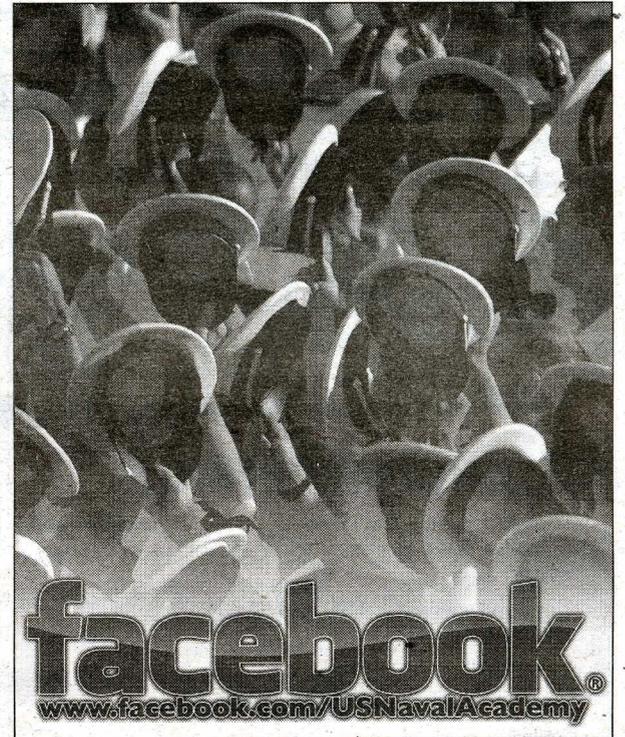
"Every student that came by the exhibit was so excited to operate the Perch around the pool and

wanted to make their own," said Aoki, who graduated in May and is awaiting the start of flight training in Pensacola, Fla.

Nielsen, a mechanical engineering major, said she was excited to see so many young girls interested in science. "It's really, really inspirational to see kids excited about this," she said.

In fact, similar science experiences should become a frequent staple of any elementary school curricula, she said.

Building a SeaPerch would be "an awesome" classroom assignment, Nielsen said. "I really think these kinds of events should happen all the time," she added. †



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