UConn’s Northeast Underwater Research, Technology and Education Center (NURTEC) has collaborated with the American School for the Deaf (ASD) in West Hartford since 1998, using advanced technologies to bring ocean science and engineering to deaf students. The most recent example of this partnership has been supported by the Center for Ocean Sciences Education Excellence – Technology and Engineering for Knowledge (COSEE-TEK). In 2013 three teachers at ASD received training in ocean acoustics, including building their own hydrophones and learning to use acoustic software to visualize sounds as both waveforms and sonograms. COSEE-TEK staff then provided students from ASD the opportunity to build a new version of a hydrophone adapted from a simpler piezo-electric sensor. The students also learned to use the software to visualize sounds in a test tank set up in a classroom at ASD.

The culmination of their experience for the students was to go behind the scenes at the Mystic Aquarium to test their hydrophones’ ability to record the sounds of the beluga whales in the Arctic Exhibit. The students were very excited to see the sounds of the whales displayed on the computers used to receive the sounds from their hydrophones. Students were able to view and evaluate the recordings made of the beluga vocalizations and discuss the results with Peter Scheifele, an acoustician at the University of Cincinnati. With the opportunity to practice using the hydrophones they built to capture sounds at Mystic Aquarium, an otherwise auditory experience became visual for them circumventing their own varying degrees of hearing loss and/or deafness.

The students benefited from higher-level science instruction, interaction with university professors and technicians, and connecting school with a scientific research environment. Through their conversations with the technicians students were introduced to possible job environments when they eventually explore post secondary education. The students worked hard to comprehend the level of information presented, but the ability to produce a usable piece of equipment aided their determination and persistence. They left the experience with a positive perception of themselves and good self-esteem.

The teachers at ASD benefited from reaffirming science they already knew, applying it, and gaining more knowledge in areas unfamiliar to them. Although the three teachers were from various backgrounds, none of them had very much experience in electronics. This experience provided a challenge and a different teacher/student interaction for the teachers. Students saw teachers as learners. Working together with both teachers and students on a level playing field opened eyes for both constituents. The teachers were enthusiastic working with the technicians and having a hand in developing new lessons that they will share with other schools for the deaf.

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Ivar Babb is director of the Northeast Underwater Research Technology and Education Center (NURTEC) at UConn. Mary LaPorta is a teacher at ASD.