

Student Scientists Conduct Research on Dolphin Bioacoustics



Left to Right: Jett Hampton and Colin Wilson at Shedd's Aquarium in Chicago, Illinois.

Linguistics is the scientific study of language. All living organisms have a communication protocol. The way dogs speak to each other is different than how humans communicate. Ecotek student scientists Jett Hampton (10th grader at Detroit Edison Early College of Excellence) and Colin Wilson (6th grader at St. Fabian Catholic School) have been doing research on the bioacoustic protocols that govern the social behavior and interactions of dolphin pods.

Conducting research on the bioacoustics of marine animals is not easy. Throughout the project Jett and Colin have had to deal with different challenges. One obstacle they faced is the fact that there is no aquarium large enough in the lab to hold a dolphin.

To solve this problem, on November 17, 2013 they traveled to the Shedd's Aquarium in Chicago, Illinois. While there they met with dolphin trainers of Pacific White-Sided dolphins and discussed a broad set of topics, ranging from the structure of dolphin vocalization to the behavior of dolphins in captivity. Before doing their field work, Jett and Colin read the project text entitled *Dolphin Societies: Discoveries and Puzzles* written by Karen Pryor and Kenneth Stafford Norris. They also did research on the physics of sound-e.g. wave formation, wavelengths, hertz, frequency, amplitude, crest, trough, pitch, loudness, decibels

Colin and Jett are currently working on documenting what they have learned during the first phase of the project. The next step is to learn more about hydrophone technology, a device that can be used to listen and record dolphin vocalization underwater. The students will travel to the Georgia Aquarium in Atlanta to test out their equipment.



Colin and Jett interviewing dolphin trainer at Shedd's Aquarium in Chicago



Colin performing sound measurement experiment using bell jar and vacuum pump



Jett holding skull that was used to model and study dolphin vocalization process.

About the Ecotek Science Program

Ecotek is a science research lab program for young inventors and researchers in grades 5 thru 12. Student scientists work on projects aligned with the issues being addressed by world leaders at the United Nations. To learn more about Ecotek Lab go to <http://www.ecotek-us.com>